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Southern FLIGHT

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June 1947
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THE NEW CESSNA 195

at Lake Killarney, Orlando, Florida

See advertisement on page 7

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HARTZITE PLASTIC ADJUSTABLE-PITCH PROP

for Light Planes

That's right! The new Hartzite Plastic Adjustable-Pitch propeller is now available for replacement purposes. Production is coming up. So, if you small plane owners want to be sure of getting the plus-performance of this new propeller on your ship, see your dealer *now*.

Hartzite adjustable-pitch propellers give the light plane many of the features previously found only in larger aircraft. For example, by ground adjustment of the Hartzite blades you can increase maximum speed. High pitch will give you economical cruising; low pitch provides quick takeoff. You can change pitch to compensate for changes in engine performance, or to meet varied landing and take off conditions. You'll be amazed at the improvement in plane performance this propeller imparts.

The adjustability of the Hartzite plastic propeller is only one of its features. Hartzite blades are weatherproof through and through . . . a scratch will not cause progressive deterioration, because the blades are of *solid* Hartzite plastic. Nor will weather affect balance or strength. This propeller is impervious to damage from weather hazards — sun, salt-water, rain, humidity.

Remember, this new Hartzite plastic adjustable-pitch propeller is a worthy companion to the Hartzell hydro-selective propeller, which is standard equipment on the North American Navion and the Republic Seabee.

Get your order in. It's available *now*!

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2-WAY PROTECTION FOR YOUR ENGINE

New Mobiloil Aero Assures Continuous Heat Transfer from fast-moving engine parts . . . finest protection against wear

New Mobiloil Aero is one of the famous Flying Red Horse products available to private flyers at over 1,000 airports Coast-to-Coast. Its extra resistance to oxidation gives the 2-way protection every plane engine needs ... (1) complete lubrication, (2) continuous removal of heat from pistons, cylinders, bearings by oil circulation.

And for full power engine performance, use MOBILGAS AIRCRAFT! *It's 80-octane-clear—the same high quality wherever you land.*

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Russell Field at Fort Worth is an outstanding example of a well-operated field where Flying Red Horse Service is available to private flyers. Complete maintenance and repair service is provided. Nor has the transient flyer's own personal wants been forgotten —a restaurant and refreshment bar is located at the field.

Ed Williams (left) Aviation representative, Fort Worth District, Magnolia Petroleum Company, and veteran A.A.F. bomber pilot, and Buck Russell, owner-operator of Russell Field.

Genial B. M. Roberts, a flyer of wide experience and owner-operator of T.C.U. Field at Fort Worth, fills up a plane with Mobilgas Aircraft. In addition to Flying Red Horse service, he also has maintenance and repair facilities, and operates a flying school with ratings through commercial pilot.

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JUNE, 1947 VOL. XXVII, NO. 6

Southern FLIGHT

Including MODERN AIRPORTS

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What do you need, Pilot?

From the finest luxuries to the sternest essentials, the flyer can find what he needs where this famous sign is displayed. From chronographs to carburetors, your Authorized PAC Dealer has them . . . or can get them for you in a hurry from one of the major PAC bases that reach from Alaska to Mexico City. PAC Dealers are accredited representatives for more than 300 lines of aviation equipment. They have access to inventories of fresh stock worth millions of dollars. In service, too, your PAC Dealer can give you prompt and expert attention — in supplying engine parts and overhauls. Especially important, he can supply you with a PAC-warranted exchange engine as good as new — at surprisingly low cost. Wherever you fly, watch for the PAC sign of better service. It's appearing on more and more airports, because airport-service operators are finding that PAC helps them do an outstanding job for their customers.

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PAC-BUILT SERVICE EQUIPMENT PAC builds many kinds of maintenance and repair equipment, for use in PAC shops and for sale to commercial and government aircraft operators. This fuel-pump test stand (PA-870) includes all facilities necessary to test aircraft fuel pumps after overhaul. Descriptive literature is available.

The Birdmen's Perch

By *Major Al Williams*, ALIAS, "TATTERED WING TIPS,"
Gulf Aviation Products Manager, Gulf Bldg., Pittsburgh 30, Pa.

We have kicked up a hornet's nest!

We have stirred a beehive. We have swung a prop with the throttle wide open. We have made more trouble than an ape in a banana factory.

We said, somewhat hesitantly mind you, that we thought a chap named Dornbusch was probably the oldest pilot in the U.S.

117,000 shrieking, indignant letters now lead us to ponder this belief.

There's a pilot in Delta, Colo., it seems, who goes whisking over the Rockies as though they were the foothills of Philadelphia!

He has his own airplane, 700 hours, and soloed in 1940.

He is 80 years old!

As soon as we get in touch with him, we're going to tell you more about this magnificent character.

JUICY ITEM

Look what you've got now: An aircraft battery with a full 24 amp. hour capacity.

But the catch on this one is that they shaved it down to 21½ lbs. . . . to 7¾" x 5¼" x 7⅞"!

Now what they did to get this phenomenal package of power was to dispense with every single ounce and inch of dead weight—just as we do when we refine Gulfpride.

Because—as you ought to know by now (if you're a loyal Perch pilot)—after Gulfpride is refined an additional refining step is added.

This extra step, the Alchor Process, gets dead weight carbon and sludge formers out of Gulfpride Oil.

We lose a lot of oil this way, *but you gain a lot of lubrication* when you use Gulfpride.

LITTLE KNOWN FACTS DEPT.

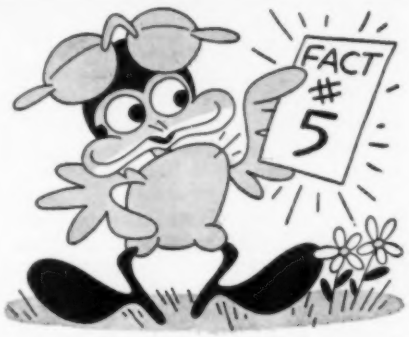
Guess what?

(Appropriate sounds of great commotion, noise, festivities and screams of joy.)

WE GOT A SENIOR PERCH PILOT!

Charles Miller, of Sacramento, Cal., bless his aviation-saturated heart, has sent us *five* little known facts about well known planes, good enough to use in the Perch.

What's more, he sent proof every time!



As you know, a "Fact" good enough to print and accompanied with proof gets you the exalted commission of Perch Pilot (bottom rung).

And we promised that five of them would get a promotion to Senior Perch Pilot.

Miller is first with the following:

"Designing and building one wheel for the B-19 costs as much as the price of twenty popular light planes!"

There's only one promotion left for Miller . . . he can become a Command Perch pilot when he's had twenty of his "Facts" accepted.

After that he's ready for heaven!

Put your "Fact" on a post card now. Mail it to the address above and you too may gain fame, fortune, and thousands of proposals from beautiful women.

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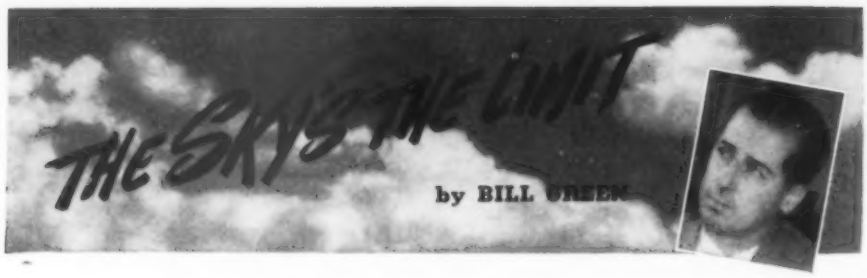

Helpful Suggestions for Airlines

YESTERDAY afternoon in Houston we took the Southern Pacific Sunbeam to Dallas. We wandered out about 4:15 to have plenty of time to get a newspaper and look around before 4:45 departure time. When we arrived the train was standing on the track. Conductors and porters were ready for the passengers. We went in, sat down in our reserved seats, and started to read. When we felt the smooth starting motions of the train, it was exactly 4:45—not one minute before, not one minute after scheduled departure.

This started us to thinking about the difference between railroad and airline service. Recently our airline plane was scheduled to leave Dallas at 7:45 A. M. We got up bright and early, made it out to the airport about 7:20, and were told there was a slight delay. We had previously been informed by telephone that we would get breakfast on the plane. This appealed to us more than the Love Field Coffee Shop, which is undoubtedly the noisiest eating place on earth, what with the constant breaking of dishes, the hullabaloo made by people and the constant interruption by the public address system which is always trying to find some dope who hasn't got sense enough to get on his airplane.

Eight o'clock came and the information counter wrote up the departure time as 8:15. About 8:15 it was changed to 8:30, at 8:30 it was written up to 8:45 and finally the airplane got in about five minutes to nine. Because of the fifteen-minute intervals we couldn't eat while waiting. About nine o'clock we were permitted to board the plane, which then sat for some ten or fifteen minutes.

When the stewardess came along, we told her we were hungry. She said, "My goodness, didn't they feed you in Dallas? They told us they were feeding all the Dallas passengers in Dallas." We finally got off ground at 9:15. Another stewardess came back and said, "Are you the fellows that didn't eat in Dallas?" She then conferred with the other one and asked three or four people up and down the airplane whether they had eaten. Most of them had not. Our hostess finally explained that since they thought everyone had been fed, the food had been permitted to get cold. Thereupon this airline which had gotten us out of bed at six o'clock and had promised to feed us a nice hot breakfast gave us an order of cold bacon and eggs and luke-warm coffee.

We wouldn't complain, but it happened again the other day when we went to Los Angeles. Our airplane got off about one hour late and arrived one hour late at San Diego and one hour late in Los Angeles. But they did serve us a pretty good dinner en route.

On the return trip, we were supposed to leave Los Angeles at five fifteen. The people where we confirmed our tickets told us the bus would leave the ticket office at 4:10. Arriving at two minutes to four, we barely caught the bus.

At the airport, we took a look at the new facilities being completed on Mines Field, the new Municipal Airport. It was obvious that the airline terminal buildings at this new field were designed from 1936 statistics. They were so taxed with people there was no place to sit down and practically no place to stand. People constantly bumped into us and the smoke from cigarettes and cigars was so thick it could be cut with a knife. We stood outside for a little while but the rain drove us back into the smoke. Schedule departure time finally arrived but was not announced. We got our brief case and overcoat, walked out and found an airplane some people were boarding and climbed in. About forty-five minutes later they decided to start the airplane off. It was then forty minutes behind. It taxied out to the end of the runway, warmed up its engines and sat there while some three or four other airliners took off. After everything was clear it still sat there for another twenty minutes and finally departed an even hour late.

We could hardly afford to drop this matter at this point since an obvious problem exists. We don't know the answers but some suggestions might be in order.

For one thing, the thought occurs that perhaps some of these delays are caused by airways traffic control. There is no doubt that the ATC people cannot anticipate clearance when the airlines themselves never seem to know when their planes are going to depart. A delay of ten minutes or an hour may force ATC to wait until a few minutes after the airliner is actually ready to go before it can study changes in weather conditions and traffic before issuing a new clearance. The best solution is for the airline to make every possible effort to leave on time.

As far as the passengers are concerned, many are not worthy of all the consideration they get. Five or six out of every load have to be paged

(Continued on page 54)

SIX-JET MARTIN XR-48 is designated by the AAF as a long-range, very high-speed bomber. Powered by GE gas turbine engines, housed three in each wing, the XB-48, weighing 58,500 lbs. empty, has a wing span of 108 ft., 4 in.; is 85 ft. 9 in. long and 27 ft. 6 in. high. Due to thin wings, the XB-48 uses a unique "bicycle type" landing gear system which houses the main gear in the fuselage and smaller wheels near each wing tip for stability during taxiing. The Martin Company required fourteen months to complete the big six-jet bomber—a full year less than normal development time for a new military airplane.

MAKE MONEY—SAVE MONEY IN THEIR CESSNA 140...THE PLANE THAT GIVES YOU... *More for your Money*

Gone are the days when the farmer lived "1,000 miles from Nowhere." Today, he can get to a cattle sale two states away in a morning after chores. And his wife can shop in the smartest stores in a dozen different cities.

The new 2-place Cessna 140 and 120 make this possible. They're fast, all-metal structure *cross-country* airplanes . . . at light training plane prices (Only $3245 and $2695* f. o. b. Wichita). If you can drive, you can learn to fly them quickly. And gas, oil, service and depreciation run about the same as a family car! See your Cessna dealer.

Also See the New
CESSNA 195 and 190
AIRLINE SPEED
AIRLINE COMFORT
in Your Own 4-place Personal or Company Plane.

Again Cessna gives you *More for Your Money!* These new 4-place all-metal planes with the famous Cessna cantilever wing offer big-plane luxury and performance at surprisingly low cost. The 195—with its 300 H. P. Jacobs Engine—has a top speed of over 180 m. p. h.; a range of over 700 miles . . . carries up to 200 lbs. of luggage. The 190 is basically the same and offers comparable performance with a 240 H. P. Continental Engine. Ideal for personal or charter use!

**The Cessna 120 is the ideal training and utility plane. Less luxurious interior than the 140 and not equipped with starter, battery, generator or flaps.*

THESE CESSNA DISTRIBUTORS ARE READY TO GIVE YOU A REAL DEMONSTRATION

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(Telephone CRescent 1155)
Distributor for Cessna aircraft and Firestone aviation products.

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CUTTER-CARR FLYING SERVICE
West Mesa Airport
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Complete sales and service . . Student instruction . . Single and twin engine equipment for chartered ambulance.

South Central Texas

TOMCO AVIATION, INC.
FRED THOMSON, President
Business office and showroom on San Antonio Municipal Airport
Storage, Mobilgas, service, repairs, and parts on Stinson Field. Oldest operating CAA approved school in San Antonio. G.I. Flight Training—private, commercial, instructor, instrument, multi-engine.

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SAN BENITO FLYING SERVICE
KING CRUSE
San Benito, Texas
(Telephone 652)

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MUSTANG AVIATION, INC.
(1) Mustang Field (PO Box 548, SMU) Northwest Hy. & Abrams Rd., Dallas
(2) Hangar 10, Love Field (Box 7172)
(Telephone D4-2365)
Sales, service, instruction, storage, gas and oil, supplies, repairs.

Central Texas

AERO ENTERPRISES, INC.
Meacham and South-Worth Fields
Fort Worth 6, Texas
(Telephone 6-1709)
Aircraft sales, service, parts and repairs.

Texas (Panhandle to the Rio Grande)

SOUTH PLAINS AIRCRAFT **Municipal Airport, Lubbock** *(Telephone 8216)*
Owned and operated by James J. Vickers and Tom N. Hutchinson. Sales, service and complete facilities for repair and training.

KNOW WHOM YOU DEAL WITH . . .

SHELBY M. KRITSER

Stinson dealer in the Amarillo and Lubbock area

HERE'S a man who lives aviation, even though he comes from a family of ranchers, and in spite of the fact that he graduated from the University of Texas as a mechanical engineer and has a Master's degree in business administration from Harvard.

You see, he bought his first plane in 1932 and has flying in his blood. He flew the Atlantic for Pan American Airways from 1937 to 1941, before engaging in WTS work in Texas for another four years.

His service to aviation and to his community reached a focal point in 1945, when he induced a group of Amarillo business men to form the Tradewind Airport Corporation. Tradewind Airport, just southeast of the Amarillo city limits, was designed for private flying. It attained national recognition when, in 1946, it won the Haire Award for airports for non-scheduled flying.

Shelby Kritser is one of Texas' most successful aircraft dealers—because he regards the airplane as an item of utility; he sells it as a business asset. Even his sales demonstrations are cross country flights in connection with his prospects' own business.

He is no swivel chair executive; his average is 90 sales calls a month. His repair shop is one of the best in West Texas. He is a licensed pilot, A & E mechanic, and a designated aircraft maintenance inspector. People like to do business with a man who knows his business as well as Shelby Kritser does.

(This is one of a monthly series whose purpose is to acquaint you with members of AIRCRAFT SALES COMPANY'S *dealer organization.)*

Strictly a sales and service organization, established seven years ago, and dedicated to good customer relations . . . Serving as liaison between the manufacturer and the ultimate consumer, through a closely-knit dealer organization . . . Maintaining for aircraft dealers and operators large stocks of aircraft and engine parts, equipment and supplies — and an immediate shipment policy on large and small orders . . . . All phases of maintenance and repair . . . Aircraft and Engine Repair Depot No. 1177.

AIRCRAFT SALES CO.

6-5491 MEACHAM FIELD

6-5492 FT. WORTH, TEXAS

San Antonio Branch: Stinson Field

AIR Report

SIGNIFICANT TRENDS IN THE NEWS

Ercoupe's New 4-Place and Twin-Engine Models

Production this fall on the 150-hp. Ercoupe "4" and next year on a twin-engine 5-place Ercoupe is planned by Engineering & Research Corp. Both are all-metal, 2-control airplanes. The 4, to fly in June or July, has retractable gear and flaps and will cruise at 147 mph. on 75 per cent of power, according to preliminary engineering. It is notable in that many of its parts are interchangeable with the existing 2-place model, indicating a price in the category of the Stinson Voyager. Erco's twin, at least a year off, is a high-wing with pusher engines of 125 hp. each. Preliminary data includes a cruising speed of 170 mph., the ability to take off and climb to 13,000 ft. on one engine, and a 900-mile range. No price has been estimated but the twin appears to be in the executive airplane class, far higher in price than any single-engine models now in production. Tooling for it will cost over $750,000. Erco, incidentally, has added 200 new dealers since January 1, has resumed production and is continuing lightplane developmental engineering in addition to production.

Four-Engine Beech Model 34 Ready

Flight tests are due for Beech Aircraft Corporation's high-wing, V-tail Model 34, powered by four 300-hp. "flat" Continentals driving two propellers. In addition to the flight test prototype, Beech has another Model 34 now undergoing static load tests.

Navion Airline

A non-certificated airline in Texas' Rio Grande Valley is amassing an impressive record with Navion airplanes. The 4-place craft not only operates profitably on a small volume but are practical for short hops and small airports. Another Texas operator plans to use Navions on a similar plan in another section of the state.

Short Snorts

Cessna is readying an all-metal, 4-place Model 170 for the low priced category, in contrast with its high-priced Model 190-195 5-place series. Power is in the 165-hp. region and price, while not announced, will be competitive with $6,000 types. . . . A jet fighter with swept back wings, produced by North American Aviation, Inc., will probably be the Army's successor to the P-80 Shooting Star in 1948 equipment. It is said to be much faster than publicly-announced jet fighters, although Republic's P-84 has attained 618 mph. and British jets have been timed at 621 mph. . . . Major changes in Martin's 202 and 303 transports have been undertaken at a time when full production was under way.

Waco Wing Not Seabee's

Ingenious production planning has resulted in Waco Aircraft Company buying skin stampings for Aristocraft wings from Republic Aviation Corp., which turns them out from Seabee dies. But the Waco wing is definitely not a Seabee wing, although the airfoils are almost similar. Spar, wing tips, ailerons and attachments are Waco's own design and are made in Troy, Ohio. Actually, the Waco wing has one more spar than the Seabee; its fuel tanks are in the wing with an additional false spar behind them. Both airplanes use the same Franklin 215-hp. engine, but the Waco installation uses a short crankshaft and short nose, the crankshaft having an SAE flange for flexible driveshaft mounting.

Owner of Stinson Voyager prepares to take off for week-end vacation flight with family, luggage, and dog.

Here's America's No. 1 "family" plane... the great new STINSON VOYAGER for '47!

IN THE stunning new *21st Anniversary* Stinson Voyager you'll find *everything* you need and want in a personal plane for family use . . .

Roomy comfort for four people and luggage. Famed Stinson safety, utility, and rugged dependability. Inherent stability and such ease of handling that owners say, "It almost flies itself!"

The new Stinson Voyager is literally a "fly-anywhere" plane. It can land and take off with ease on short strips, small fields, and even pastures and golf courses.

This great new 4-place Voyager carries a useful load of 965 lbs. . . . cruises at 125 m.p.h. . . . maximum speed, 134 m.p.h. Take-off run, only 590 ft. Rate of climb, 755 f.p.m. Service ceiling, 15,650 ft. Stops in 290 ft. after landing.

Flaps for quick take-offs and slow, short landings . . . built-in wing slots for safety. Inherently spin-resistant. Oleo spring-draulic landing gear for smooth, cushioned landings.

Two-way radio, with dome loudspeaker . . . landing and navigation lights . . . starter . . . hydraulic brakes. Cabin interiors soundproofed, with controlled ventilation.

This beautiful new Stinson Voyager is waiting for you at your Stinson dealer's. Go see it—fly it—learn how easy it is to buy and own.

In the meantime, write for illustrated brochure to Stinson Division, Consolidated Vultee Aircraft Corporation, Dept. F, Wayne, Michigan.

Stinson

FOR 21 YEARS—AMERICA'S MOST USEFUL PERSONAL PLANES

See the Stinson Flying Station Wagon— America's first personal "cargo" plane. Reinforced cargo compartment (24 cu. ft.) in 2-tone plywood paneling, equipped with tie-down straps.

Side-loading baggage compartment offers an additional 11 cu. ft. of carrying space.

Capacity: pilot, full gas tanks, and 552 cargo pounds. Two rear seats can be replaced in 5 minutes to make it a 4-place plane.

Just among ourselves

EDITORIALS

WELCOME BACK, C. G. TAYLOR

A LOT of old-timers will get a kick out of the announcement that C. G. Taylor is re-entering the lightplane business. They have known for a long time that C. G. had one more design he hoped some day to build and market. Backed by a group of former Taylorcraft distributors, C. G. Taylor is back in there pitching. The group has purchased the name and other assets of the defunct Taylorcraft company from which Taylor was squeezed out a few years ago. Patience has its reward, even in the airplane business.

It's an exceptional coincidence that Taylor's return to the personal airplane manufacturing fold comes simultaneously with the announcement that North American is ceasing production of the Navion and getting out of the personal plane market. An old-timer returns, a newcomer departs. Never a dull moment in aviation!

C. G. is one of the grandpappies of the American lightplane. The Piper Cub, which used to be the "Taylor Cub," is perhaps one of the most significant airplanes in all aviation history and ranks right alongside the Ford Trimotor, the DC-3 and the B-17 as worthy of a special niche in aviation's hall of fame.

There's still a lot of sentiment in the flying game though sometimes it seems deeply buried beneath official papers on one's desk, the rush of daily business, the fight for survival. But the announcement of C. G. Taylor's return to lightplane manufacturing forces the old sentiment to pop up and say to a real old-timer, whose contributions to personal aviation are legion, "Welcome back, C. G., we're damned glad to have you aboard."

MOTORLESS FLIGHT AT CROSSROADS

HAS American ingenuity, pioneer spirit and progressive thinking been insufficient to furnish the necessary encouragement, backing and aircraft and skill to fly without power a distance greater than 465.5 miles, the standing international record set by the Russians? Or to fly higher than 32,000 feet, a record set in Germany and subsequently unofficially exceeded by that country? Or to remain aloft for over 52 hours in a sailplane as the Germans did in a two-place ship many years ago?

Why should it be that in spite of the endless variety of topographical and meteorological conditions in this wide country, America is at the bottom of the list among major nations in motorless flight?

Why should it be that industry, government and our public spirited leaders have consistently failed to grant this field of aeronautical endeavor a place equal to that which it has enjoyed in England, Russia, Poland, France, Italy, Japan and several South American countries?

Why should it be that reports in the hands of our leaders and national agencies attesting the importance of youth training in aircraftmanship and piloting, the conclusions of which show its uncontested value in a long-range national aviation policy abundant in defense significance, still lie unheeded?

Why is it that we have forgotten the role gliders played in Crete, in Normandy and elsewhere on the battlefronts of World War II?

The 14th annual National Soaring Meet will be held at Wichita Falls, Texas, July 4 to 20. As yet there is no trophy or purse money remotely equivalent to the Bendix and Thompson trophies of the National Air Races. Upon the success or failure of the National Soaring Meet will depend the future condition of soaring in the United States for many years to come. We all must get behind the Wichita Falls meet with everything we have.

MERCY PORTS

AIRPORT proponents should take to heart the lesson of Texas City, the little Galveston Bay industrial community where tragic explosions enveloped thousands in one of the nation's worst catastrophes. As detailed in our columns last month, hundreds of airplanes rushed aid to the stricken town and were credited with saving many lives and alleviating much suffering.

There are hundreds, yes thousands, of private, commercial and military aircraft of every size and description instantly available to any community in time of disaster. These life-saving and life-giving air fleets don't have to be called. They volunteered for Texas City in an amazing spontaneous mobilization, coming from airports and bases far and wide the moment the need became known.

But what would have happened if there had been no airport at Texas City? The fact that there was emphasizes the importance of starting airport planning in every community. Theirs is only a small field, it is true, but Texas Citians know now that their efforts in maintaining it were worthwhile. There is another side. Archie Donahue, Texas City airport manager, remembers very well the misguided obstructionists who not only withheld support from the airport's program but handicapped it. Their change of heart is amazing, now that aviation has rewarded the community in the greatest peacetime mercy operation ever performed by airplanes.

How's the airport situation in *your* town?

SELF-POLICING

TWO important developments in the GI flight training program demand the immediate attention of the many operators who have contracts to provide this training to veterans of World War II.

The first, and perhaps the most important because of the financial implications, is an impending cut in the

(Continued on page 40)

Quick, Henry—the helicopter!

Hops bring up to $2000 an acre. But bugs like hops too! In the State of Washington, hop mites threatened quick destruction to a valuable crop.

What did the owners do? A Bell Helicopter was summoned—in exactly 20 minutes it dusted 8 acres with insecticide at an 80-pound-per-acre rate. The result: A chemist and an entomologist spent the afternoon hunting mites. One found two. The other found one.

Over farm, field, orchard, the Bell Helicopter is at work an average of 40 minutes out of every 60. It can come up close to a stand of trees, and swing right around on its own axis. It needs no airport. It sprays or dusts or seeds at a surprisingly low cost.

This summer, Bell Helicopters are on duty in Tucson, Arizona; Lockport and Northbrook, Illinois; Presque Isle section of Maine; Syracuse, New York; Portland, Oregon; Los Angeles, California —in 12 states, Canada and Sweden. They are spraying and dusting crops, patrolling forests and power-lines, reporting news, training new pilots . . . making themselves useful to business, agriculture and the government.

Find out now how The Modern Magic Carpet* can make money for you. Write Helicopter Division, Bell Aircraft Corporation, P. O. Box 1, Buffalo 5, N. Y.

BELL HELICOPTER

*T. M. REG. U. S. PAT. OFF. AND PRINCIPAL FOREIGN COUNTRIES ©1947 B. A. C.

PRODUCT OF BELL *Aircraft* CORPORATION

PIONEERS IN JET-PROPULSION, RADIO-CONTROLLED FLIGHT AND SUPERSONIC AIRCRAFT FOR THE U. S. ARMY AND NAVY. DESIGNERS AND BUILDERS OF THE WORLD'S FIRST COMMERCIALLY LICENSED HELICOPTERS FOR LAND AND WATER.

N. W. AYER

BEHIND THE BONANZA

Teamed together, efficient design and piloting develop high performance in Beech's remarkable Model 35.

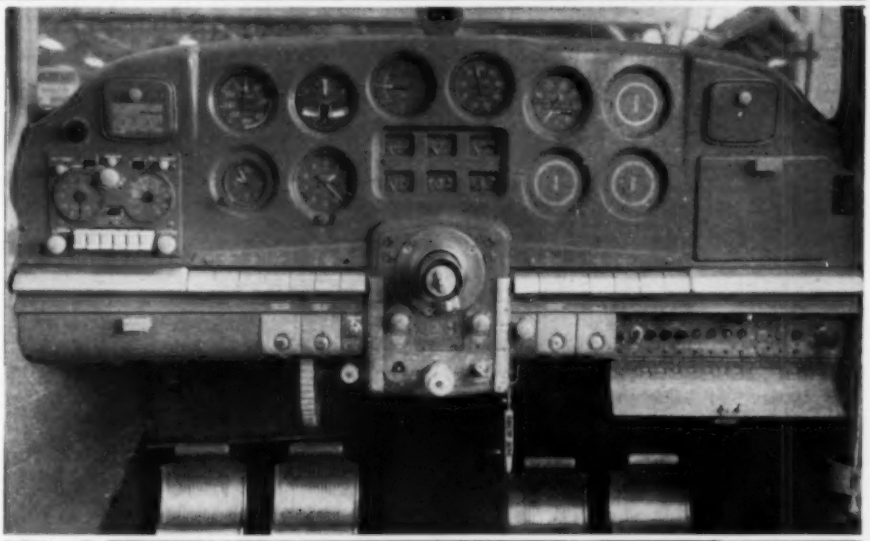
By **JOE JAMES**
Associate Editor

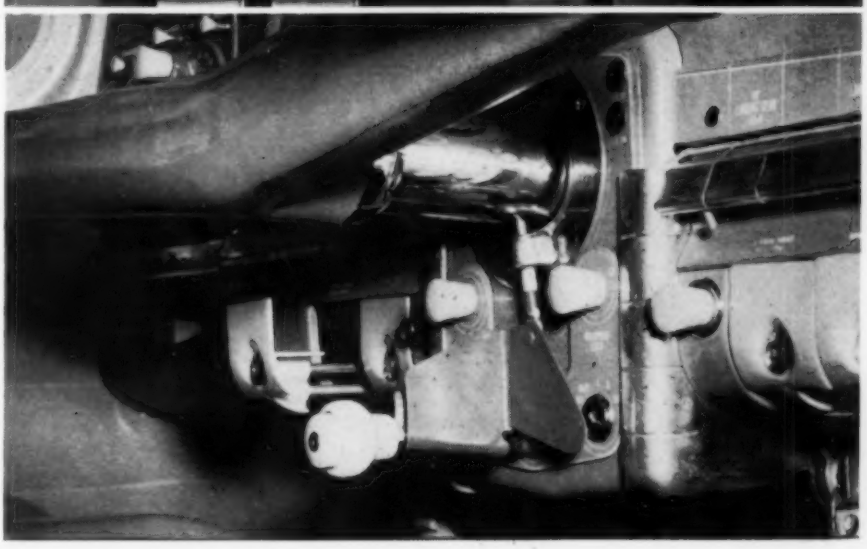
FEW new airplanes have aroused as many restroom rumors as the Beech Bonanza. Back in the days when the unique four-place V-tail design was first undergoing ATC testing, the word got around that the radical tail would never make the grade. Next, rumors were wafted along that the engine couldn't take it, that production was snafu'd and that the Bonanza was too fragile to pass final tests. If all those stories had been true, the V-tailed design by this time would be remembered only as the "Beached Bonanza."

If you put any stock in those reports, you're in for a surprise when you fly the Bonanza. There isn't a personal plane now in full production that boasts better engineering, comfort or utility. Flying the Bonanza, you know that here is a handful of the latest and most modern developments in personal planes. Sleek and clean, it is a beautiful hunk of airplane; in the same breath, it is not the answer to every pilot's needs and is not without its limitations. But more about that later.

Going places in a hurry is one of the Bonanza's strong points, as genial Jim Gray, Dallas distributor, showed us on a quick cross-country to Longview, Texas. Jim, flying over to talk Beech business with a prospect, left Love Field at 14:13, climbed to 6,000 feet, and 44 minutes later banked over the field at Longview. Pulling 70 per cent of power at 6,000 feet (2,050 rpm. and 21.5 in. manifold pressure with an outside air temperature of 70 degrees F.) the Bonanza indicated 148 mph.—or a true air speed of 168 mph. That figured 174 mph. ground speed. Our return trip took 47 minutes for a ground speed of 163 mph. Ground speed for the round trip averaged 168 mph. That short trip alone is a good indication what a plane like the Bonanza can mean to a business man. We left Dallas at 2:13 in the afternoon, flew to Longview, made a business call and a leisurely airport visit, were back in Dallas at 6:40 p. m., and had our feet under the dinner table a few minutes after seven.

Sportsmen are likely to grow restless when they hear about our next afternoon in the Bonanza. The weather was warm and balmy and could best be described as the kind that makes you itch to have a rod and reel in your hand. Since we needed more time in the Bonanza, it seemed logical to make the most of it. With fishing gear and cameras loaded in the roomy baggage compartment, three of us climbed into the Bonanza with Pinky Hutchins of





WALTER DELIVERS AGAIN in the above photo, showing Walter Beech wheeling a new Model 35 from the factory. Complete instrument panel at right has handy receptacle (lower right) containing master switch, generator switch and electric circuit breakers. Lower photo shows handy control system lock, with a flange blocking ignition keyhole.

Dallas Aircraft Sales and headed southeast. Twenty-five minutes and sixty-five miles later, we were over the fine turf airport at Malakoff, Texas. And there, right on the airport, was what had lured us down—a 150-acre lake well stocked with bass (see page 14).

After a quick lunch at the airport restaurant, we climbed into convenient boats and were off to try our luck. An hour later we had five bass.

Leaving Malakoff at 5:45, we were back in Dallas at 6:07. In an automobile the round trip drive would easily have taken four hours or more. The Bonanza's air time for the 130-mile round trip was only 47 minutes—that's 163 mph.

Flight Characteristics

Although speed is one of the Bonanza's best features, it takes technique for top cruise performance. We learned this flying with Currey Sanders, a top-ranking test pilot now selling Beech products at Shreveport, La. "You've got to get it on the step," Currey explained, "and if you don't you can still have correct power settings and

(Continued on page 35)

Aerial view shows Melvin Dodd Airport's private lake, stocked with black bass, crappie and bream, at end of 2,500-ft. east-west runway. It's free to airmen.
—(SOUTHERN FLIGHT Photos by Tom W. Collins.)

Invitation to Fishermen

PRIVATE fliers searching for a place to go fishing in the vicinity of Texas can find no better or more hospitable spot than Melvin Dodd Airport, 1½ miles east of Malakoff, which is 65 miles southeast of Dallas. Adjoining the all-turf runways is a 150-acre lake, stocked with game fish. Rancher Dodd has thrown it open without charge to private fliers for the summer.

SOUTHERN FLIGHT's staff has personally tested Dodd's airport and lake. The airport has a 3,600-ft. north-south runway and a 2,500-ft. east-west strip, heavily seeded for turf and constantly maintained in excellent shape. A complete line of fuels and lubricants is carried and the airport lounge and restaurant are new, spotless and feature prewar prices for country cooking.

As for the lake, one member of the Southern Flight expedition caught five black bass in one hour.

"Private fliers are welcomed to fish our private lake without charge for the rest of this summer," Dodd said. "There aren't any overnight facilities now, but visiting fliers will find hundreds of acres of wooded shoreline for cots and pallets if they want to sleep in the open. Guest cottages are planned for 1948." ★ ★ ★

Top picture shows Pinky Hutchins, Airport Manager Bill Stewart, J. O. Womack and Associate Editor Joe James admiring five bass caught in one hour on the test trip. Rancher Dodd (left) spots his airport on a road map for Joe James. James, Pinky Hutchins of Dallas Aircraft Sales and Managing Editor Tom Ashley are shown below preparing to fish after parking Pinky's Bonanza at the water's edge.

Piper's New Cub

SUCCESSOR to the familiar J3 trainer, Piper's new PA-11 made its debut in May with a number of improvements including an 87-mph. cruising speed, a pressure cowl which encloses its 65-hp. Continental engine, and a blue and yellow paint job. Still the same airplane in dimensions and basic design, the newest Piper offering for 1947 costs $150 more than its predecessor.

In performance, the following comparisons with the J3 emphasize the PA-11's improvements: Cruising speed (75 per cent power), 87 mph. vs. 73 mph.; maximum speed, 100 mph. vs. 83 mph.; landing speed (sea level), 38 mph. vs. 39 mph.; take-off roll (sea level), 350 ft. vs. 370 ft.; cruising range (full load), over 300 miles vs. 200 miles; rate of climb (sea level, full load), 514 fpm. vs. 450 fpm.; absolute ceiling (full load), 16,000 ft. vs. 14,000 ft.

The new Piper carries 16.5 gals. of fuel as compared with 12 gals. in the J3 and transfer of the gas tank to the left wing from forward of the instrument panel allowed Piper to lower the instrument panel and nose cowl and

(Continued on page 36)

Three views of the new PA-11 show improvements over the familiar J3 (inset, right). These include cowled engine, new paint scheme, more streamlined struts, lower instrument panel, folding front seat and new controls on left cabin wall (two similar buttons are carburetor heat and cabin heat).—(Piper Photos.)

HOME EVERY WEEKEND

Burt Ford's driveway, 1,800 feet long and 25 feet wide, is also his landing strip. T hangar (center) is opposite the home's attached garage. Behind Navion, shown landing, are swimming pool and guest house. Ford place contains 72 acres.
—(SOUTHERN FLIGHT Photo by Tom W. Collins.)

This salesman's airplane proves as useful to his business as a tractor is to farming — a practical example of aviation at work.

By GEORGE E. HADDAWAY

BURT FORD is a suburbanite who makes a good living selling women's purses. When you drop on the landing strip next to his home and look around his lawn, you say to yourself, "Here's a guy who has everything." Over yonder is a guest house with a fine swimming pool in front of it. To the right is a T hangar housing Burt's new Navion; and next to that, his barns and chicken house, just a few short steps to one of the most comfortable homes in or near Dallas. Over on the east forty acres are a few white-faced Herefords grazing leisurely under a bright Texas sun. His daughter's saddle horse whinnies from the corral.

"I never quite thought that I was a guy with everything," Burt says when you tell him what you're thinking. "I'm just a drummer at heart — a manufacturer's representative, a simon pure traveling salesman of which there are thousands upon thousands all over the landscape," Ford tells you.

"But," I counter, "darn few traveling salesmen have all of this and heaven, too—including the Navion."

"Well," Burt comes back, "I don't think there's anything extraordinary about my set-up here, except for the airplane in my backyard. A lot of people wonder about that. Fact of the matter is, that airplane is no luxury. The swimming pool is, but my airplane makes me money; it made me enough to buy this farm and all that's on it. Besides, my family is the most important thing in my life and that Navion gets me home every weekend."

Traveling Salesman on Wings

Therein lies the nub of this story. We've often wondered why more salesmen didn't buy airplanes. We've always thought that salesmen were one tribe of homo americanus who could actually find that elusive and highly debatable factor called utility in a personal airplane.

Apparently in Burt Ford I had at last found the epitome of the flying traveling salesman. When I learned what the asphalt and crushed rock landing strip cost (he also uses it as a driveway from the four-lane highway a half mile from his house) I was convinced that Burt was that epitome. It cost $6,000. But the airplane paid for it, Burt will tell you, so why worry about the cost? I scratched my head and started taking notes.

Burt got acquainted with airplanes at Kelly Field, Texas, when he enlisted in the U. S. Army as a radio man in the 49th Bombardment Squadron in 1920. But it was just a speaking acquaintance. He fixed radios and sergeants didn't fly. After doing his hitch in Uncle Sam's Army, he went out to sea as a radio operator. It paid well and besides he got to see a lot of lands and people he had read about as a schoolboy in Cameron, Texas. One of his jobs was on the private yacht of A. Y. Gowan, then president of the Portland Cement Company.

He quit the salt in 1925, went to Dallas and started selling radios. He learned how to sell. Business was excellent; what with Coolidge prosperity and the discovery of the superheterodyne radio receiver, Burt made money. He married on May 21, 1927—the day that Charlie Lindbergh landed on Le Bourget. The stock market was booming and Irving Berlin wrote "Blue Skies." Burt socked some money in the market but he stayed too long—it took him with it in the crash.

Shortly after his financial setback (people quit buying radios), Burt was in a small East Texas town when he became acquainted with a salesman who sold women's purses. The salesman talked him into trying the line and Burt ended up with a territory. Since that time it has been the routine success story, except for the part aviation has played, especially during the war years when gasoline rationing forced him to travel by air or not at all. That's when he got the jump on his competitors and began to compile figures that not only justified airplane ownership but proved that if you flew a plane enough it actually cost less than any other form of transportation, especially when time is so important as in showing new samples to buyers. In other words, getting there "fustest with the mostest."

One of the amazing aspects of Burt Ford's flying career is the fact that he stepped out of a Great Lakes trainer in what was generally accepted to be a mighty hot airplane—the sleek Luscombe Phantom which was often referred to as a little Lockheed Vega. Don Luscombe didn't produce many Phantoms, but Burt bought one when he had only thirty hours total time. He flew it for years, wrote it off and waited until something like the Navion would be available. That day came when Jimmy Marshall, Southwest Navion distributor, made the delivery

last Thanksgiving. It seems that Burt is always getting jobs done on famous days.

Getting Ahead of Competitors

His most recent long cross-country trip was to New York last month in order to pick up the first samples designed for the fall market. On his way back to Texas he stopped along the route and called on his customers, displaying beautiful bags not yet in production. He wrote orders at least 30 to 60 days ahead of his ground-bound competitors.

On this trip he flew from Dallas to Teterboro, right at the gate to Manhattan, via Little Rock, Nashville, Knoxville, Roanoke and Pimlico, in 10 hours, 30 minutes. He burned 120 gallons of gasoline and 6 quarts of oil, cost of which, when added to one night's storage, totaled $38.33. On the much longer return trip he stopped in Chambersburg, Pa., Draper, N. C., Winston-Salem, Atlanta, Birmingham, New Orleans, Beaumont and Houston, where he called on his customers. This circuit was 15 hours 28 minutes flying time, burning 145.7 gallons of gas and 8 quarts of oil for a total charge of $64.58. "Match that in your auto," says Burt, "and I'll give you my new Chrysler Town and Country station wagon."

What kind of flying does a business man do? "Straight and level!" emphasizes Burt. "To me an airplane is transportation—not a trapeze. If it can't take me where I want to go with safety, comfort, cargo and speed, I don't want it for any purpose." Burt repeated himself, especially to point out that he was ranking safety, comfort, cargo and speed in the order of their importance to him as an aircraft owner. Then he went on:

"You see that swimming pool out there? That's a luxury. So's that dolled-up station wagon. But my Navion is just as much a business tool for me as that tractor you see by the barn. I couldn't operate without it.

"As a manufacturers' agent, my business demands as much territory coverage as can be handled efficiently. My airplane is the only method of transportation that can give me that necessary coverage, and I've tried autos, trains and airlines. They just don't do the job as well as my private airplane. With it I can cover a larger territory when the trips are most urgently necessary. That adds up to more frequent sales and larger billings."

He billed a half million dollars worth of bags last year, probably more than any other salesman in the game. He firmly believes that business would not have been half that much if a new standard of selling, made possible by his personal plane, weren't involved. We asked him why he didn't fly the airlines and his categorical answer was: "Too expensive. I can't get away from my sample cases, some 16 of them which weigh from 20 to 30 pounds apiece. They fit snugly in my Navion with the back seat removed. And you can't sell women's purses with photographs—you gotta have the real McCoy and let the buyer go over them with a fine-tooth comb."

He has never made any deliveries by air because it isn't necessary. Once he flew to a shoe show in New York, picked up bags to match the best sellers and started home, calling on accounts that didn't attend the show. This put him from 30 to 60 days ahead of the "market." When the terrapin salesmen arrived, the pickings were slim.

Safer to Fly

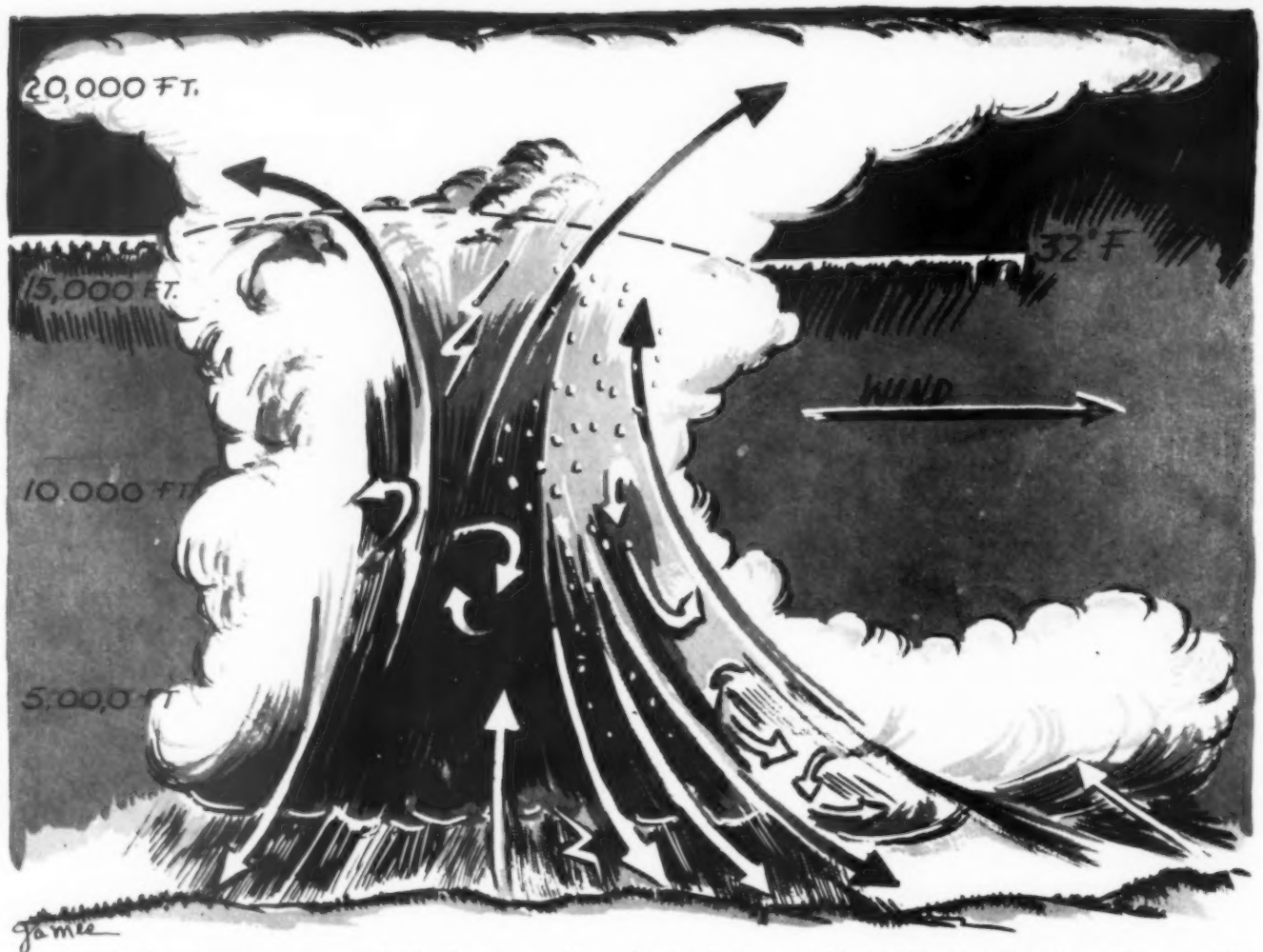
Ford claims he would die if he had to drive an automobile over his expansive southern and southwestern territory and do the work he has to do. Even if the highway grind didn't kill him he has a terrible fear of falling asleep at the wheel. "My airplane is prolonging my life," he states with vehemence and sincerity, and Burt's knocking on fifty years.

When asked how service was at the many airports he visited, he emphatically tells you it's quite satisfactory in most cases and excellent in some. "Mallard Air Service at Teterboro is one example," he claims. "There is no tie-down charge. Just a few minutes after I landed they put me in their station wagon, took me to a bus stop a half-mile away and in less than thirty minues I was on 41st Street in Manhattan. Bus fare was two-bits."

"Forget the money my plane makes for me," Burt exclaims, "forget the incomparable plain and honest fun of flying cross-country, forget the measure of prestige the airplane gives me with my customers who feel they are really getting service, and forget the health angle—my family is the most important thing in my life, and my plane gets me home every weekend."

Ford (in airplane) loads sixteen sample cases in his Navion with help of John Grossman, his assistant. "Josef" insignia refers to his product, a leading line of fine women's handbags. No other 4-place airplane can accommodate the bulk of his light sample cases.

(SOUTHERN FLIGHT Photo by Tom Collins.)



If a meteorological fluoroscope were available, the inner workings of a thunderstorm would resemble the sketch above. Core or center is its most dangerous portion. Here violent updrafts and downdrafts roll air as you would roll a piece of putty in your hands. Storm sketched is typical of summer season, when icing levels often extend to twelve or eighteen thousand feet.

Tips on Turbulence

The pilot who understands thunderstorms will seldom let one place him at a disadvantage.

By H. A. SHANKLIN

THEY say a skillful cross-country pilot is not one who knows how to fly in thunderstorms, but one who knows how to avoid thunderstorms. To that I say nuts . . . if a pilot flies cross-country often and long enough, sooner or later he will tangle with a thunderstorm, inadvertently or otherwise. The success or failure of that encounter will depend on whether the pilot knows and recognizes the weaknesses of the foe. A pilot who only wants to know how to avoid the thunderstorms, and not learn all about them, will place himself in immediate danger if he ever wanders into one; a pilot who knows about these storms, will seldom be placed at a disadvantage by one.

Nowadays, private planes having the speed and the range they do, many persons are flying cross-country who are not what you would call seasoned pilots. Yet, so many conflicting things have been written about the thunderstorm, one of the most formidable dangers confronting the cross-country pilot, that it's no wonder many of them are confused and bewildered.

There are definite ways to fly thunderstorms safely. There are signs that indicate to the experienced pilot the degree of turbulence, hail and lightning. With just a little knowledge a pilot can lose that paralyzing fear of the storm, but never his respect for it, and, therefore, be more able to cope with it.

My conclusions might not jibe with many of the articles and books written on this subject. But being a line pilot and flying through storms as a matter of course, I have been able to separate some of the baby prattle written about them from the sound theories that bear up under actual operation.

A Storm is Born

A thunderstorm is born when a column of warm moist air is caused to rise, either by ground heating, frontal activity or rise of air upslope over mountains. As it rises it expands and cools and condensation takes place, forming a visible cloud. Once condensation starts, the column of air does not cool as rapidly as before and remains warmer than the surrounding clear air at the same level. This dif-

ference in temperature between the column of rising air and the surrounding air at the same level is the cause of the violent updraft and turbulent condition in the cumulus cloud.

Convectional cooling causes rain to form at great heights, rain and sometimes hail. As this rain and hail falls, it chills a column of air by evaporation and its own temperature. This chilled column of air, its density increased by the chilling rain and hail, becomes the return downdraft, equaling in violence and intensity its counterpart the updraft.

That, in short, is a thunderstorm: updraft, downdraft, hail, rain, lightning and turbulence. Each can cause a pilot trouble . . . but not if he knows where to look for these characteristics and how to judge their intensity.

The degree of turbulence, hail and lightning in a thunderstorm is directly dependent on how high the top extends above the ground. And the height is dependent upon the icing level, for a storm cannot extend too far above this level—the cool air is too stable and has a damping effect on the runway column of warm air. In the winter, when the icing level is low, thunderstorms are not tall or vicious. But in summer, when the icing level is high, thunderstorms assume fearful proportions.

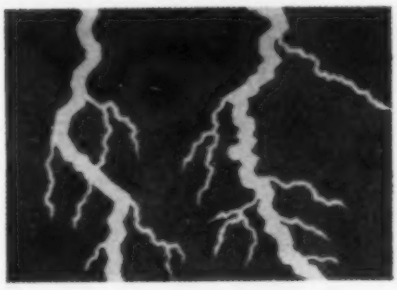
So when making a flight into an area reporting storms, check first the icing level. If it is at seven or eight thousand feet above the ground, as it is in the spring and fall, you can be sure the storm will not extend any higher than fifteen or seventeen thousand feet. These storms, while containing a good deal of turbulence, as most all towering cumulus clouds do, will have little lightning and seldom have hail.

However, if the icing level is as high as twelve to eighteen thousand feet, as is common in summer, thunderstorms can tower to thirty and forty thousand feet. Storms with tops that high are extremely violent and well developed. Everything in them will be king sized.

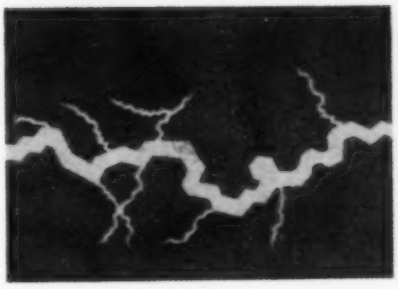
Danger Signs to Look For

The most dangerous portion of a thunderstorm is its core or center. The center is where the updraft and its ugly brother, the downdraft, are operating. Both of these drafts are localized. In a storm that is moving (storms generally move with the prevailing winds aloft) the updraft is located at the front part of the base; the downdraft is just behind it with vortexes in between. In this center, because the cold downdraft is created by falling rain and hail, you will find

VIOLENT STORM



MILD STORM



Lightning, from the pilot's viewpoint, is more helpful than harmful. Vertical flashes indicate the storm's core and warn of violent turbulence. They also reveal that the pilot is approaching from the front of the storm. Horizontal flashes usually indicate a mild storm and moderate turbulence.

the majority of the rain, hail, turbulence and lightning.

Another indication of a well developed storm is the presence of the flat anvil-shaped cloud bank on top. When you see this you know the storm is manly, to say the least. The only good thing about this anvil-shaped cloud is that its protruding edge indicates which way the storm is moving, as this cloud deck leans with the winds aloft. Another way to tell which way the storm is moving is by the shape of the cloud; the back side has a somewhat smooth vertical line, while the front is jagged with protruding cloud banks.

But, you ask, how do you fly thunderstorms? That depends on the type. Isolated thermals that stand out by themselves and are usually formed by ground heating in late summer afternoons and stationary storms over mountains are best flown by going around them. Because well developed storms have winds whirling counter clockwise around them in the northern hemisphere, a pilot going to the right of these storms will have the advantage of a tailwind. But, in the case of a moving thermal storm, it is best to circle it toward the rear so it will be moving out of your path. Trying to cross in front will sometimes force you too far from your course, tailwinds notwithstanding.

Thunderstorms of the warm front type (warm air sliding up over a slope of cold air), which have high bases and cool smooth air below, are best flown by going beneath them. In all but mountainous country, this is the best all-around method to fly storms.

Cold front thunderstorms (cold air sliding beneath warm air) usually form a solid wall, called the squall line, ahead of the front. This is a line of storms with cloud between. Of all the weather flying the fast moving cold front with its line of storms, hail, turbulence and ice presents the greatest flying hazards. A private pilot should not attempt to fly through a squall line. But if he must, going under is as safe as any other procedure. If terrain prevents going under, the pilot must pick out the center of an individual storm and then steer just to the side of it.

When In Doubt, Fly Under

Under no conditions, supposedly authoritative manuals to the contrary, should a pilot steer for the thickest part of a storm. If the clear air beside or beneath a storm is too rough, the thickest or blackest portion will be untenable. This is simple logic, for the up and down drafts, the vortexes, the severest turbulence, hail and lightning are the essence of the storm. Any turbulence or other undesirable characteristics found beneath or beside a storm will be mild compared to what is happening inside.

Whenever in doubt as to the best method of navigating a storm, fly underneath it. A height about two-thirds from the ground to the base will keep you clear of the roll cloud located at the mouths of the up and down drafts and will prevent you from being drawn up into the storm by the updrafts. There are several sound reasons for flying beneath all storms, terrain permitting.

In the first place, the air of a storm from the ground to the base is not much warmer than the surrounding air. Therefore, the uprush in this region is seldom turbulent or violent.

Also, lightning occurs most frequently between the upper and lower portions of the same cloud, as the potential gradients are the steepest between these two points. While lightning, of course, occurs frequently between cloud and ground and between different clouds, the greatest amount occurs in the same cloud.

Hail in a storm forms high above the freezing level—as it falls through the warmer air much of it melts and the quantity and the size of the individual pellets are considerably reduced

(Continued on page 36)

More Than One Way

By A. H. KNOUFF

Don't tell off the inspector because he asks you to do something not in the regulations or to do a maneuver a little different from the way your instructor did it. More than likely the wise old boy is just trying to see if you really know how to fly the airplane.

WE have learned two new ways to do chandelles in the past month. Since we have been flying for 20 years, you may be surprised at this. We weren't. In spite of much talk about standardization of flight instruction, about the only maneuver that is not subject to much variation is straight and level flight.

This may confuse you if you are a beginner. Your instructor's word is law. You accept his definitions and descriptions of maneuvers without question. You strive to please him. Eventually you succeed pretty well.

What a shock you get when you ride with another instructor! Everything you do seems to be wrong, although you think you are doing it just as you were taught. Probably you are. The trouble is that instructor No. 2 has different ideas. He may declare that your first instructor was a nitwit for teaching you to do maneuvers the way you do. If so, he is casting doubt on his own competence. A good instructor knows there are many variations of any maneuver, although he may forget to tell you so.

This is partly your own fault. You want your flight instruction handed to you in a neat package without any loose strings. You would like to have your instructor tell you to push the stick forward 5½ inches, the right rudder pedal 1½ inches, wait 5 seconds, pull the stick back 6½ inches, etc. You are confused and resentful when he says he can't tell you how far to push the stick to hold the tail up, how much rudder you need to overcome torque, or when and how far to pull the stick back to lift the airplane off the ground.

If he shows you more than one way to do any maneuver, you are quite likely to ask, "Which is the *right* way?" When he answers, "Both", you decide that he is either joking or trying to talk you into taking more dual. So you let the matter drop. Most instructors take the easy way—by not bringing it up in the first place.

In the case of figure 8's, the instructor can't get out of it. He must teach you at least three varieties of the figure 8. The regulations require a private pilot to do moderately banked *around-pylon* 8's and a commercial pilot to do shallow and steep *on-pylon* 8's. To complicate matters, the inspector's ideas of "moderately banked", "shallow" and "steep" may not be the same as your instructor's.

Tricks of the Trade

Smart instructors find out how the local inspector wants maneuvers done and teach their students accordingly. Smart inspectors often cross up these instructors by asking the prospective pilot to do the maneuver in a slightly or completely different manner, just to find out whether they have learned to fly the airplane or merely to do a maneuver. "Smart" students, in such cases, may tell the inspector off for requiring them to do something not in the regulations, or criticize their instructors for not teaching them the "right" way. In either case, the inspector has found out what he wanted to know and invites the applicant to come back and see him again some time—and take the test over.

These suggestions from an instructor who has learned new ways will smooth your air work to satisfy everybody concerned.

Last month we discussed the basic principles of around-pylon 8's. Now, let's see how to apply these principles to two or three variations of this kind of 8, and describe a few other types so that you may understand more quickly when your instructor mentions some of them.

The simplest are 8's-*along-a-road*. One version of this is to fly along a road directly into the wind, make a 360-degree turn to the right, which leaves you over the road headed directly into the wind again, and then do a similar turn to the left. If the wind direction is steady and the time you take to roll out of the turn is the same as it took you to roll in, you will automatically complete each turn directly over the road. In each case, your air-path will be a circle because your bank is constant, but your ground-path will be oval because the air in which you are flying is moving parallel with the road. Even these simple 8's are subject to variation according to the ideas and ingenuity of your instructor as to how steep you should bank, or, for instance, whether he wants you to start the turns at the same point by using some landmark on the road.

Eight's-on-a-crossroad may be the

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next step used by your instructor to introduce you to more complex correction for wind. For this, you fly along one of the roads to the intersection, make a turn to the right which brings you to the other road headed back toward the intersection, through the intersection, turn to the left and fly back to the intersection along the original road. Since you have to line up with one of the roads at the completion of each loop of the 8, this exercise helps teach you how to line up with the runway when approaching to land.

The main difference between 8's-*across-a-road* and the two kinds just described is that the road used as a reference runs *through* both loops of the 8 instead of between them, and some particular point on the road is usually selected as the center or cross of the 8. In its simplest form, all you have to do is fly across the road through this point, turn 180 degrees, cross the road again and continue turning so as to fly back through the center point. As your skill increases, your instructor may require you to cross the road at the ends of the 8 through specific points—passing over definite landmarks. He may also require you to use a road which is at right angles to the wind, and to fly into the wind at the outer ends of the eight's, and downwind at the center (or crossing) point.

Eight's-across-a-road make you more conscious of drift, and your instructor may add other requirements to increase your accuracy. As accuracy increases, the application of the principles of the "magic circle" also increase. These are worth repeating:

1. At the extreme windward point on the circle, (a) the bank will be least, and (b) the wing will be farthest ahead in relation to the pylon.

2. At the extreme downwind point on the circle, (a) the bank will be steepest, and (b) the wing will be farthest back in relation to the pylon.

3. As you fly downwind through quadrants 2 and 3, (a) you must gradually increase the bank, and (b) move the wing backward in relation to the pylon.

4. As you fly upward through quadrants 4 and 1, (a) you must gradually decrease the bank, and (b) move the wing forward in relation to the pylon.

5. Between quadrants 2 and 3, and between quadrants 4 and 1, the wings will be in line with the pylon.

Four-Bank Pylons

The 4-*bank* 8 is similar to 8's-across-a-road except that you are flying straight and level each time you cross the road. To do this, you must fly out farther from the center or cross of the 8—or make sharper turns. A variation of this is sometimes called a 2-*bank* 8 in which the ends or the loops are formed by connecting two rather sharp turns with a long wide curve instead of straight and level flight.

If possible, you should find a road that is directly cross-wind, with two other roads crossing it. The intersections of the roads will be your pylons —centers of the circles which form the 8. You will have to learn from experience how far apart they should be for the airplane you are using and the ideas of your instructor and the local flight examiner. It will be easier to do good 8's if there is some landmark on the main road—halfway between the crossroads—so that you can see exactly where the center or cross of the 8 should be. If you can find other landmarks which are the same distance from the pylons, it will help develop your accuracy because you can check any error in your judgment of the distance.

Check-Ride Tips

Such a set-up may be hard to find. On a flight test, don't waste time looking for a special kind of pylon. Anything on the ground that can be easily seen will do—just so the line between them is perpendicular to the wind. Start by flying through the center of the 8 on a downwind heading, making your first circle either to the right or the left. You can do 8's around pylons which are not on a line perpendicular to the wind, and you can start them by flying upwind. The other procedure has become customary to get you in the habit of keeping track of the wind. It is also easier and safer to fly through the steepest part of the circle first and make an into-the-wind turn.

As you complete the No. 1 quadrant of each circle, you have to stop thinking about the pylon you have been circling and think about the one you are going to circle. Look at both pylons; measure the distance between them; fly through the point halfway between them with your wings almost in line with both pylons.

Inspectors usually want you to do gentle (30-degree bank) 8's, consisting of two tangent circles, because they show up errors more sharply. Don't be rattled, however, if he asks you to use pylons farther apart with an interval of straight and level flight between the circles. This is quite legitimate, and the principles are the same.

You can do steep 8's around the same pylons used for gentle tangent-circle 8's by connecting the smaller circles with straight and level flight. I am quite sure you will not be required to make steep 8's consisting of tangent circles.

On Pylon 8's

On-pylon 8's are entirely different from those around pylons, except that you are required to maintain a constant altitude in both. The main idea of on-pylon 8's is to "keep the wing on the pylon". This does not mean that, from where you sit, the wing tip will appear to touch the pylon. It does mean that the pylon will not appear to move forward, backward, up or down in relation to the wing tip. The steepest bank will be on the up-wind side, because the wind blows you closer to the pylon, so that the wing has to point down more. Around-pylon 8's may be done at any altitude, but on-pylon 8's can be done at only one altitude with any given air speed. There are many more tricks to these, but you won't have to do on-pylon 8's until you get ready for your commercial pilot rating.

You will probably hear a lot about *lazy* 8's and *Cuban* 8's. These are not even closely related to the others we have been discussing. The lazy 8's are a good exercise for relaxation and co-ordination, and are rather fun—but don't do them with a passenger unless you want to clean up the airplane. It gets its name from the fact that the nose of the plane appears to write an 8 lying on its side. You pick a point on the horizon; point the nose to one side of it; dive a little; pull the nose above the horizon in a climbing turn; let the nose drop through the mark you selected; repeat on the other side.

In a Cuban 8, the whole airplane describes an 8 lying on its side. It is definitely an acrobatic maneuver consisting of half-loops and half-rolls.

Further variations of the 8's are limited only by the ingenuity of your instructor. For instance, he may have you combine them with climbs and glides to teach you throttle co-ordination and the effect of changing torque on the other features of these maneuvers. Just remember that there is more than one way of doing any maneuver. Attempts to establish an "official" or uniform "right" way to do them have not been very successful. If you can adapt yourself to any version an instructor or inspector asks you to do, it shows that you know and can apply the basic principles and are not likely to blow up when confronted with a situation new to you. ★ ★ ★

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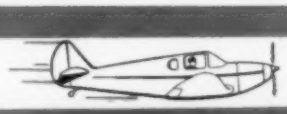

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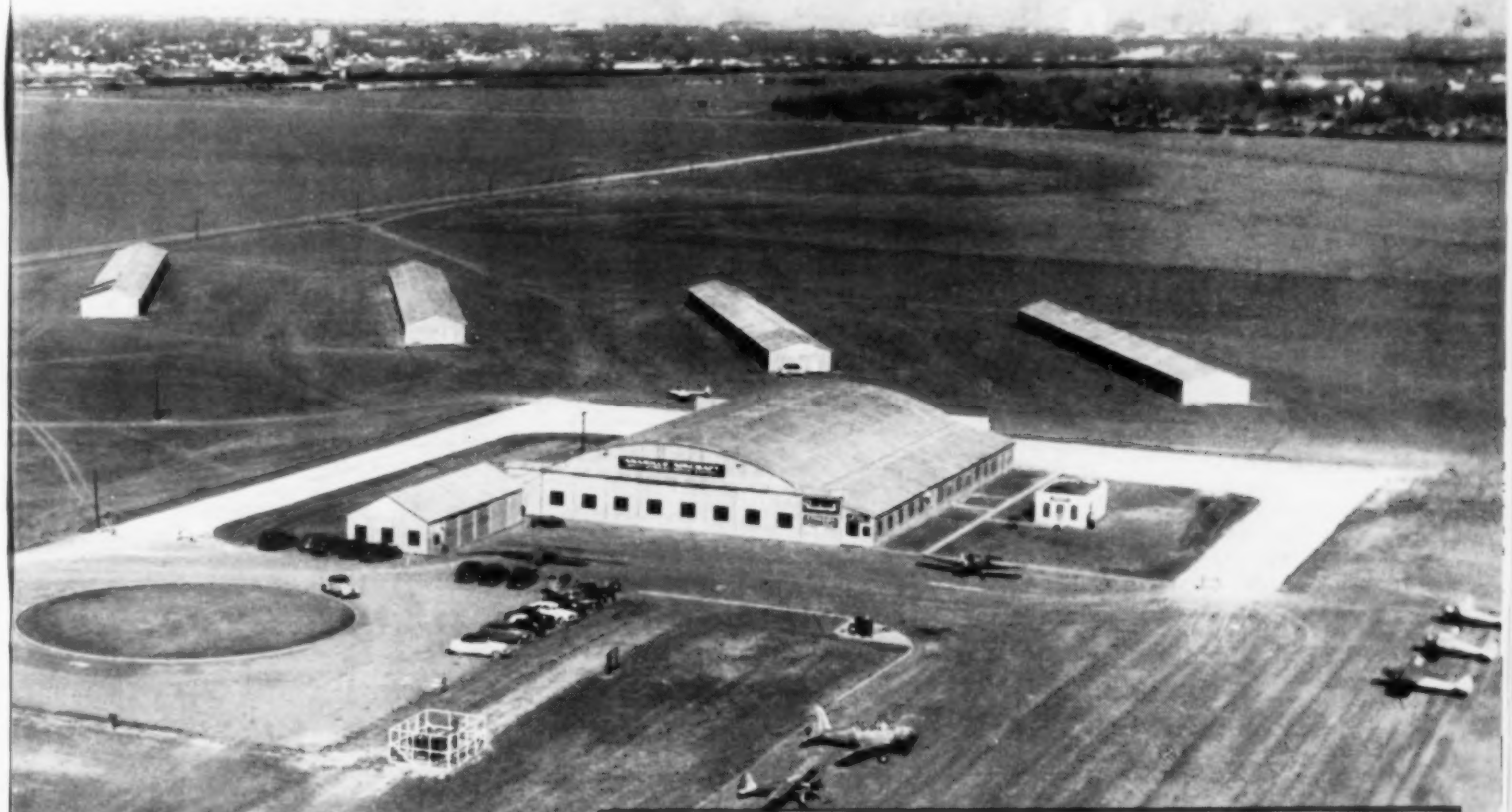
Modern AIRPORTS



Careful planning during blue print stages helped make Amarillo's Tradewind Airport a prize winner. Although this fine turf field is snuggled close to city limits, all approaches are protected by easements on surrounding property. Modern underground sprinkling system keeps 300 x 5,000 ft.-plus runways in good condition.

THIS MONTH

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Landing Fee Standards

Charges based on gross weight offer fairer assessment than outmoded sliding scale rate agreements.

By JOHN H. FREDERICK

LANDING fees, which still account for about 20 per cent of the revenue for an average commercial airport, are still a problem and are far from standardized throughout the country. This is in large part due to the varied sources from which such revenue comes: the commercial airlines, the non-certificated carriers, the aircraft service operators and private aircraft.

It is now a generally accepted principle that landing fees should be set so that they will develop sufficient revenue to cover the costs of operating and maintaining the landing area of an airport. But even this much standardization has been slow in developing, partly because of what took place back in the early days of commercial air transportation when the airlines could virtually "write their own tickets" at many cities. Communities were so anxious to obtain air service that they gave little thought to the costs involved in terms of airport facilities. As a result of this generosity on the part of municipal authorities, long-term agreements were frequently entered into for the benefit of the airlines rather than for the community concerned. In some few cases airlines negotiated agreements permitting them to use airport landing facilities and even space in terminal buildings without the payment of any fees at all. In fairness to all concerned, however, it must be pointed out that many of these one-sided contracts have since been "renegotiated," often voluntarily by the airlines, because of a more enlightened attitude on the part of all concerned. It is now recognized that the airlines need the communities just as much as the communities need the airlines, that airport use and operation is a mutual affair.

However, any drastic increase in airline landing fees is always met with determined resistance. The airlines feel they can not bear any higher costs of airport operation or pass them on to the traveling and shipping public through higher rates and fares and still maintain a competitive position with other carriers. This is one reason why the airlines are encouraging the establishment of non-flying revenue producing concessions at airports in order to spread costs of operation over more revenue sources.

Sliding Scale Inequalities

Most airports are still using the sliding scale per schedule, or per landing, method of fee computation. The most popular scale is at the rate of $100 for the first schedule, $50 for the second and $25 for each succeeding schedule in any one month.

The basis of charges on schedules was fairly successful in the early days, but when volume increased the airlines added extra "sections" of a schedule, so that airline activity at many airports increased without a corresponding increase in landing fees. Airport operators soon became dissatisfied with the airline policy of making more than one flight per schedule so a new method of charging was inaugurated. This was very similar to the sliding scale per schedule method except that it covered the number of landings instead of the number of schedules, with the fee decreasing per landing as their number in any month increased.

Under the sliding scale method, either for schedules or landings, there is absolutely no uniformity in determining what the charge per schedule shall be from airport to airport, as the bargaining position of the two parties—the airlines or other user and the airport operators—generally determines. Also, the sliding scale method does not result in an equitable relationship between airlines, since the smaller companies generally pay a higher average fee, per landing, than larger airlines with more activity.

Another difficulty arises when airports attempt to figure out some sort of method for charging the non-scheduled operators. Here the flat fee per landing is not as applicable as to the certificated airlines. The airlines supply their own ramp equipment but the non-scheduled operators are seldom in a position to do this. This presents the problem to the airports of furnishing special facilities, ramp equipment and other services to the non-scheduled operators and charging for such activities over and above what a flat fee might cover.

Gross-weight Advantages

With so many disadvantages present in the use of the sliding scale method, it is surprising that it is still so widely used when another method is available. Airport managers who have been giving a great deal of thought to the problem have concluded that the most equitable basis for landing fees is on the gross-weight of each plane using the landing area. It is felt that this is much fairer than any other way of distributing costs, since the heavier the plane, the greater the expense incurred in the wear and tear on runways and the greater the investment required in constructing facilities to meet the demands for larger aircraft.

The gross-weight charge is arrived at by setting a period of time in which actual cost records for the repair, maintenance and up-keep of the facilities used in landing and take-off are kept. At the end of this period a figure is arrived at which can be divided into the total aircraft poundage that used the field in the same period. The resulting figure will be the cost per pound per landing on the field by any aircraft.

This method of charging warrants a great deal of consideration and may well be the solution of the landing fee problem. It is the first to be devised that actually takes operating costs into consideration. It will also be a system that will tend to bring about more standardization throughout the country, despite the fact that different sections will show different cost figures due to varying operating conditions. This difference will, it is felt, be negligible in the overall situation. This appears, also, to be the only method which will enable an airport manager to forecast what his approximate landing fee revenue for any period of time may be by estimating the number and gross weight of the planes that will use his facilities. It also permits arriving at an equitable starting point for charging non-scheduled operators with extra service charges added to the landing-fee base.

The question of assessing fees on aircraft service operators and on private fliers is not so easily settled by any known formula. The gross-weight method is, however, applicable to such aircraft to some extent as it is possible to assess charges on an annual rather than on a landing basis. For example, if four cents per 1,000 pounds was used as a basis the following classification could be constructed:

0-2,000 pounds	$ 8 per year
2,000-4,000 pounds	16 per year
4,000-6,000 pounds	24 per year

The itinerant private flier should not be charged, as he will doubtless use some of the facilities of the aircraft service operators based on an airport and this can be taken into consideration in arriving at their rent for space or airport buildings. It seems, however, that the weight-basis of charging is the fairest that could be applied to their type of operation. In fact, the gross-weight per plane basis seems to answer most of the problems of landing fee charging, at least until something better is devised. ★ ★ ★

Left to right in photo at left, San Francisco's B. M. Doolin, new vice president; Neil G. Brackstone of Lansing, Mich., new president; retiring President Woodruff DeSilva of Los Angeles; Don Martin of Philadelphia, new vice president. Douglas O. (Outlaw) Langstaff of New Orleans, new first vice president, was not present for the picture.

In group at right are: Frank Geng, St. Paul; F. L. Bayley, Fargo, N. D.; Charles Hanst of CAA, Atlanta, and M. V. Snoderly, Knoxville.
—(SOUTHERN FLIGHT Photos by Edgar K. Jaffe.)

Execs at Chicago

THE American Association of Airport Executives met for the eighth time in Chicago the middle of May. Some 300 members and guests took part in five days of meetings and attendance at the American Airport Exposition which, for the first time, was a part of the convention and sponsored by the Association.

In many years of convention attendance in order to speak to various groups this writer has never seen anything to equal the AAAE meeting. This was a convention without set speeches or papers. This was a convention practically run from the floor. To be sure there was a moderator of each meeting and there were a number of so-called "experts" invited to attend to help things along, but the series of discussions were actual forums where everyone had a chance to have his say on the topic of the moment. No one was choked off. Discussion grew heated at times and it might be said that few conclusions were reached.

—JOHN H. FREDERICK.

Dinner group above, left to right, includes Robert Pool, CAA, Washington; William Post, Allentown, Pa.; Jean DuBuque, Dallas consultant; Frank Bodwell, American Airlines; and M. E. Boelson, Evansville, Ind. Southern Flight's reception booth (right) was presided over by Burton H. Johnson, Mrs. Thorpe Covington and Thorpe Covington, SF's Chicago representatives.

Pat Moore, executive director (f left), in the hospital with illness, shown receiving condolences from Ma Gen. William Kepner, conventic speaker. In group above with Dr. Jol H. Frederick, consultant and Southe Flight contributing editor (left), a J. Barstow, Oakland; V. A. Carso Newark; and Leslie A. Bryan, Universi of Illinois.

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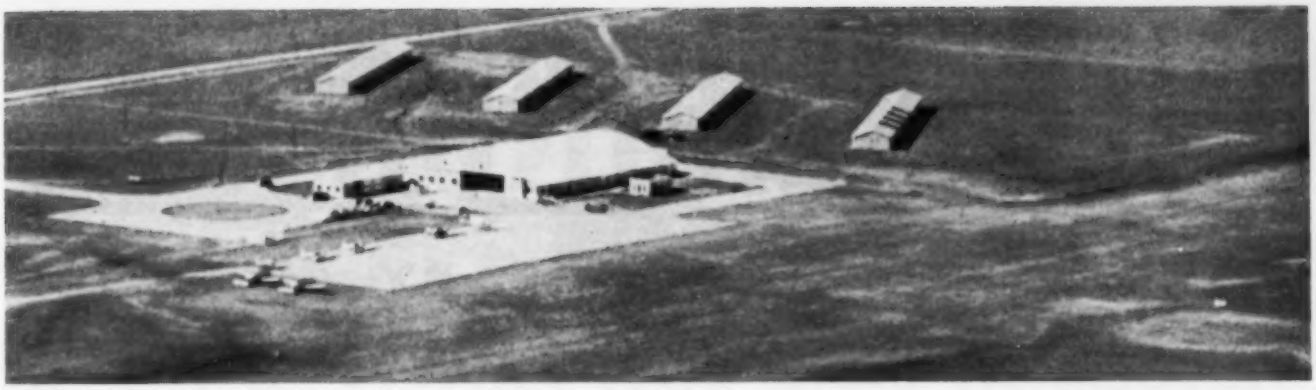

Aerial view looking northwest toward Tradewind Airport reveals close grouping of offices, shops, and hangars. Large hangar, 100 x 180 ft., houses stockroom and electric, radio, sheet metal, wood working and welding shops. Hangars in background accommodate ten airplanes each, have separate doors which may be individually locked by plane owners. Rental is $20 a month; tie-down is free. —(Clifford Holt Photos.)

Pride of the Panhandle

Far-sighted planning and modern management helped make Amarillo's newest private airport a prize winner.

By BETTY GOSE

AMARILLO'S newest airport, Tradewind, boasts many of the latest requirements for the modern pilot and stands as one of the finest of its size in the country. Snuggled against the city's outskirts, the quarter million dollar development is only three miles from the heart of the business district, has complete repair and maintenance facilities, two grass runways, 40 T hangars and a cafe.

Back in 1941 when the war's accent on aviation indicated postwar private flying expansion, a group of Amarillo business men formed a corporation and began nosing around possible locations for a new airport. The Helium City's one Municipal Airport had been allowed to fall into disrepair and provided only skimpy services. Another objection was that it was several miles out in the country.

The Tradewind Airport Corporation, headed by Shelby Kritser, president and general manager, wanted an airport located within five miles of the exact center of town. Kritser, in company with two CAA officials, made a survey of all the possible sites, and picked a section of land one-half mile east of the Santa Fe tracks on the south side of Amarillo and one and a half miles from the closest residential district.

Although only a portion of this section is used, it was purchased in order to control the erection of hazards at the end of the runways. It is neither situated on a federal airway nor near the on-course leg of the Amarillo radio range station. Electrical utilities enter the airport by underground cable. Southwestern Public Service cooperated by moving a power line 1,300 feet to the south of the airport in order to remove runway obstructions.

Best feature of Tradewind is its Bermuda grass runways, thought to be the only grass runways of its type in the country outside of Army fields. The turf was selected in view of the high cost of laying macadam or concrete runways. Too, most pilots express a preference for the soft sod landing strips.

Two runways were seeded, one north-south 3,100 feet long by 360 feet wide and a northeast-southwest strip

Parts counter (lower left) and airport cafe are typical of Tradewind's modern facilities. Cafe is decorated in a Mexican motif, seats 17 persons, and is operated by Grace Vann and Edith Bibolet. They plan to add an open terrace overlooking the runways this summer. —(Clifford Holt Photos.)

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*F. A. F., Middletown, O. For an additional $100.00 both models are now available for seaplane operations with corrosion resistant treatment and mechanical starter.

OVER 1200 AERONCA QUALIFIED DEALERS TO SERVE YOU AT HANDY AIRPORTS ALL OVER THE U. S. A.

3,200 by 360 feet. An east-west taxi strip is 1,600 by 200 feet. Since the average rainfall in West Texas is only 20 inches a year, an adequate system of irrigation had to be provided. An irrigation well pumps a continuous 500 gallons of water a minute.

Another problem was that of drainage on the level field. Each runway was given a one-and-a-half-foot crown in the center by moving 90,000 yards of dirt. Some 1,800 feet of 24-inch pipe and catch basins were included in the plan to provide proper drainage.

A point unique in airport development is the web of underground sprinklers which throw off 400 gallons of water a minute on the runways. Made of wrought iron, the pipes connect with 94 valves flush with the surface. To pump the water a 21,000 gallon vertical storage tank was installed and connected to a 50-hp. electric irrigation pump. Another 50-hp. booster pump was put in to insure a minimum of 115 pounds of water per square inch.

Individual T Hangars

Buildings on the airport include four multiple all-metal prefabricated T hangars, one large shop hangar, a garage and cafe. Each of the T hangars holds ten airplanes. Separate doors are individually locked by the airplane owner. Partitions between the individual units are of chain link fencing in order to provide security and also free circulation of air. Rental is $20 a month for each unit, which measures 42 feet wide and 32 feet deep with a 10-foot vertical clearance. Outside ramp tie-down is free.

In the 100 by 180 ft. maintenance hangar are the stockroom, mechanics' wash room, shop foreman's office, and electric, radio, sheet metal, woodworking and welding shops. Cross ventilation is provided by sliding doors at the north and south ends. The dope and engine rooms are separated by overhead doors. Magnaflux and steam chemical washdown units are located in separate ventilated rooms.

Included in a 24 by 180 ft. lean-to on the east side are offices, pilots' lounge and rest rooms. A garage adjacent to the shop hangar provides storage for airport maintenance equipment and the fuel truck.

A fuel pump out on the taxi ramp provides 80 and 91 octane gasoline. Quick transportation to town costs 75 cents by taxi.

Robert E. Siler, airport manager, is also the Beechcraft dealer on the field. Tradewind Flying School is operated independently by H. D. Man who also has a G. I. set-up for veterans. He employs three instructors and a secretary. Other personnel on the airport include John Hogan, shop manager, who oversees the work of four mechanics. Kritser also employs two service men, an airport maintenance man, an accountant, a parts man and a secretary. As the Stinson dealer, Kritser sold five during 1946 and has delivered 14 so far this year. Amarillo Aircraft, dealer for Cessna, has delivered 15 since the first of 1947.

The small cafe which seats 17 persons is operated by Grace Vann and Edith Bibolet, two long-time government workers whose inexperience has not hindered their success. A Mexican motif is carried out in the decorations. This summer they hope to add an open terrace to overlook the runways.

Cross-country pilots aren't waiting for the final dreams to come true. Since its opening visiting planes have given the sod runways a good workout and kept the Skyline Cafe busy. News of good food, courteous service and attractive facilities has traveled fast. ★ ★ ★

Airmen's Calendar

June 7-8—13th Annual National Air Carnival, Birmingham, Ala.

June 9-10—Aeronautical Training Society Convention, Washington, D. C.

June 15-19—American Society of Mechanical Engineers, Semi-Annual Meeting, Chicago.

June 18—CAA Private Flying Forum for North Carolina, Charlotte.

June 30-July 1—Aviation Distributors and Manufacturers Association Directors and Committee Chairmen's Mid-year Meeting, Mackinac Island, Mich.

July 4-20—14th Annual National Soaring Meet, Wichita Falls, Texas.

July 16—CAA Private Flying Forum for South Carolina, Columbia.

August 7-9—National Flying Farmers Association convention, Stillwater, Okla.

Emphasis on Discussions at Texas Airport Conferences

Although leading airport authorities are scheduled as speakers, the Fifth Annual Airport Management Conference at Texas A. & M. College June 4-6, sponsored jointly by Texas A. & M., SOUTHERN FLIGHT and CAA, will emphasize panel discussions on a plan making the affair a short course in airport management. A registration of 600 was expected.

Topics include municipal-airline relations, air freight, private flying trends, CAA's relation to airports, building home town aviation, hangar shortage, runways, Federal aid, airport intangible values, sales and service, airport revenues, maintenance, lighting, airport accounting and planning.

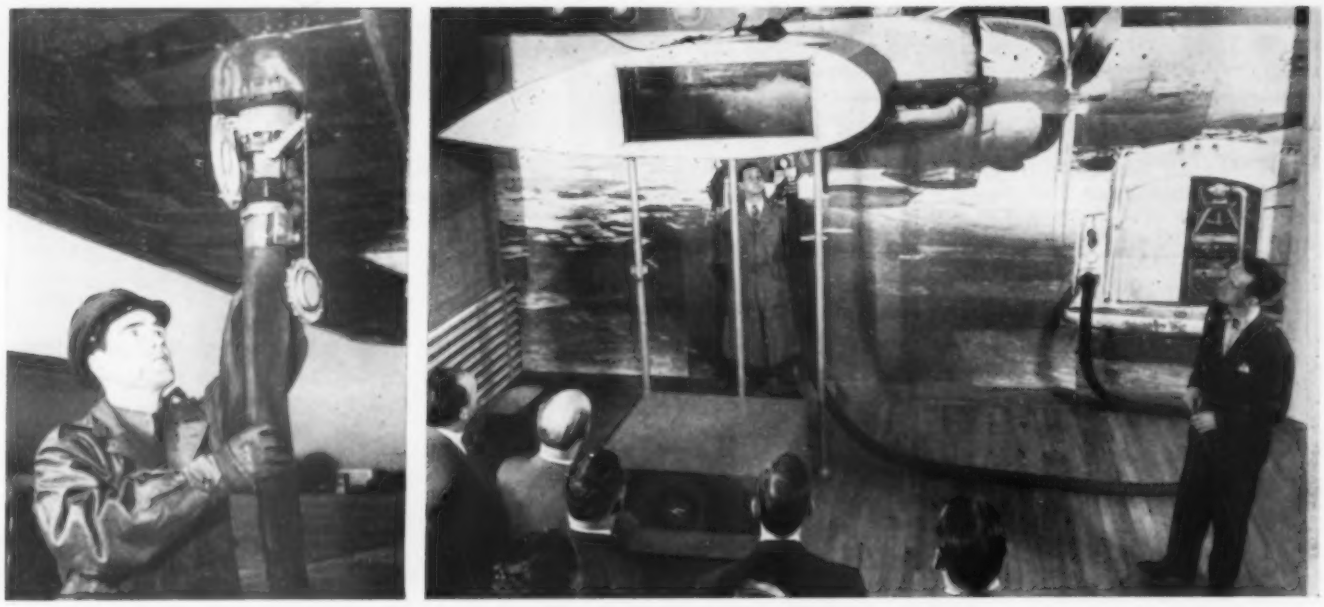
First Bids Opened for 4th Region Airport Projects

T. L. James Construction Co. of Ruston, La., was low bidder May 27 when bids were opened for construction of a new Class 2 airport at Bastrop, La. Federal aid will amount to about $65,000 of the project's $148,000 total. Bids will be opened June 10 at Plainview, Texas, for the second airport project in the 4th CAA Region, Ed Travis, airports superintendent, 4th Region, said. It is a Class 3 airport.

Control Tower Funds Restored by House

Continued CAA operation of 148 airport control towers was provided last month when the House restored Federal funds for towers which had been deleted earlier.

SMALL AIRPORT USEFULNESS is offered by this 200-gal. Jiffy Aviation Fueler announced by Aircraft Fuel Equipment Co., of Anthony, R. I., for lightplane servicing.



Locked in place by man standing on ground (left), new underwing fueling valve delivers gasoline up to four times faster than present fueling rates. Note collapsible hose which permits easier handling. At right, underwing system being demonstrated in laboratories of Parker Appliance Company. Pressure of incoming fuel operates shut-off system when tank is full.

Underwing Fueling

Operating at 200 gallons per minute, revolutionary fueling system cuts ground servicing time on big ships and eliminates wing walking.

A SIGNIFICANT development in aircraft servicing—underwing fueling—is expected to greatly reduce ground servicing time for large aircraft and to eliminate many hazards involved in conventional "wing-walking" fueling methods.

This unique fueling system is possible through special valving equipment designed by the Parker Appliance Company of Cleveland and permits fueling up to four times faster than conventional fueling rates. Instead of from two to four men with ladders clambering on the wing, the Parker fitting permits the plane to be gassed by one man standing on the ground, and through a single port. Connection with the fuel cells is made under the wing, the hose nozzle fitting into a special valve. Handling large volumes at low pressure, the fueling unit cuts off automatically when safe-full tank level has been reached, eliminating fuel gauge errors. In practice, this safety shut-off represents a precautionary measure only, since pre-set meter shut-offs supervise the exact duration of fuel flow required.

In contrast to conventional top-of-wing fueling methods, the underwing unit provides a closed system with what is essentially a valve in two sections—a permanent tank component and a hose nozzle component. Interlocking safety features make it necessary to firmly lock the nozzle into the tank unit before the nozzle and tank valves, working together as a single element, can be opened to permit flow. The nozzle cannot be removed unless the valves are closed and the nozzle closes off against full pump pressure. Parts fit closely and, after the coupling is broken, only a few drops of gas remain between the two elements. The automatic shut-off feature is actuated at safe-full tank level by pressure of incoming fuel against a float valve.

Due to time-saving features and elimination of servicing hazards, under-wing fueling is expected to be quickly adapted by the airlines. A measure of its significance is the airline estimate that a plane operating at 277 miles per hour on 200-mile trips will lose the equivalent of 22 miles per hour for every five minutes increase in ground time at each stop. Time presently required for refueling larger planes by conventional methods thus actually exceeds the flight time between Cleveland and Detroit.

The system also has particular significance for military operation, where high-speed servicing is needed for large Army planes and for Navy carrier-based operations.

The Martin 202, twin-engine transport now in production for airline use, carries underwing fueling units as standard equipment. Although the top of the 202's wing at the fuel tank is nine feet from the ground, the underwing fitting is only 6 ft. 6 in. from the ground—in convenient reach of an attendant standing on the ground. The 202 also uses a similar valve for oil filling, with a nozzle connection at the opening provided in the bottom of each engine nacelle for retractable landing gear.

The underwing valving equipment is termed ideally suited to "hydrant" connections in the large underground fueling systems currently planned for many commercial airports. A typical hydrant system was recently installed by Esso at New Orleans' Moisant International Airport. Separate hydrants are provided at each position for 91 or 100 octane fuel. Here a small hose truck couples to the hydrant and services the airplane. The hose wagon is a little larger than a panel delivery truck and, since the hydrants are under pressure, carries no pump except a small one for use when defueling.

Previous approaches to large aircraft fueling problems have included aluminum ladders with magnesium treads and non-slip soles for fueling attendants. While both of these developments greatly reduced hazards, underwing fueling is hailed as the step which takes the attendant off the wing and puts him on the ground where he belongs. ★ ★ ★

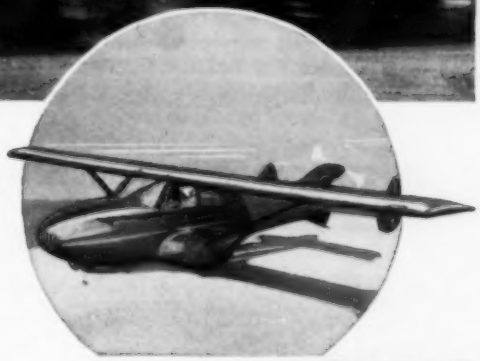
"Happy Landings"

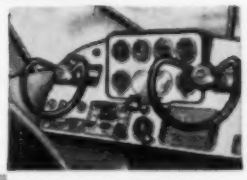
wheels Down or Up!

"Wheels-up" landings are safe and damage-free in Waco's new, four-place *Aristo-craft*. The safety-retractable tricycle landing gear provides all possible advantages of speed and fuel economy, but still assures safe landings . . . whether the wheels are up or down.

In either position . . . completely extended or completely retracted . . . the three wheels are sufficiently exposed to keep the entire plane, including the propeller, off the ground, with brakes functioning properly.

Safety-retractable landing gear . . . simplified uni-controls . . . a pusher tail propeller . . . all contribute toward making the non-spinning Waco *Aristo-craft* a safer airplane . . . easier to fly.





Simplified uni-control . . coordinated turn bank, non-spinning. Fly it as you would drive your automobile and with much less effort.

Variable pitch "tail propeller" . . . dependable, efficient performance. Eliminates prop wash on control and stabilizing surfaces . . minimizes noise.

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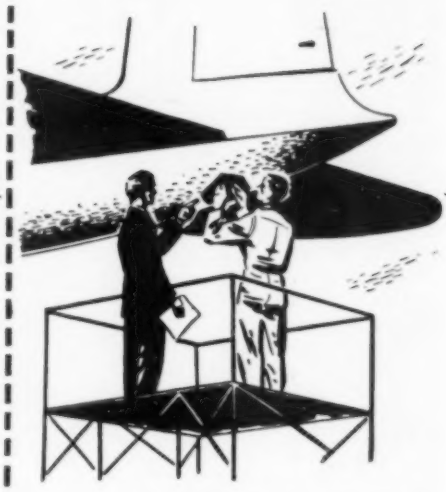
DOUGLAS FOLLOWS THROUGH

with a dependable 9-point Service Program



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The average Douglas field man has 10 years experience with the Company. He is informed daily of all new developments...has the latest technical data at his finger tips.

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Their job is to transmit to you and our Field Men the latest facts and figures from Douglas research laboratories, engineering, shop, inspection, and flight departments.

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Duties of this group are to obtain specific data from Engineering for your use, and to supply service experience to Engineering toward constantly improving Douglas equipment.

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● Only one thing pays off in operating transport planes: *keeping 'em flying!* We at Douglas can't do much about schedules or weather; but we can help you keep planes mechanically available.

That's why Douglas has a vigorous program of service...why the entire resources of this company through Douglas Service are aimed at one objective: to make Douglas Transports the most "usable" airplanes in the world.

By making full use of the Douglas 9-point Service Program outlined here, you can reduce maintenance time. You can cut the cost of repairs and service. You can keep more planes in the air.

We have the tested methods and the factory-made parts so vital in expert service work. And we have the trained men to help you. Our experience, gained through twenty years of service to the airlines of the world, is yours for the asking.

DOUGLAS AIRCRAFT COMPANY, INC., SANTA MONICA, CALIFORNIA

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If you are not taking full advantage of the services offered by Douglas, write for a free copy of our booklet "Service Program for Douglas Transports."

MORE PEOPLE FLY MORE PLACES BY DOUGLAS

BONANZA

(Continued from page 13)

never get the speed you should." Proper technique, he pointed out, is to climb some two hundred feet or so above the selected cruise altitude. Then the nose is eased slightly below cruise attitude until rate of descent is about fifty feet a minute down. As the Bonanza begins to accelerate, the pilot should not permit the prop to over-rev but should gradually ease back manifold and rpm. to the specified setting for altitude. Demonstrating, Currey deftly kept the Bonanza in perfect trim as the altimeter gently unwound to 4,000 feet. When we reached 4,000 he had the rate of climb stopped on zero, the rpm. at 2,050, and the manifold set at 21½ inches. Indicated air speed was 153 mph., outside air temperature 56 degrees C—or a true air speed of 164.5 mph.

Used to larger aircraft, Currey was amazed at the Bonanza's gas and oil consumption. He averages 10½ gals. per hour on cross-country (115 hp. cruise). Noticing this climb to about 11½ or 12 gals. on a couple of trips, Currey experimented until he learned something other Bonanza owners will find profitable to know: With full tanks, some of the fuel is shaken out through the overflow drain. To determine this he had his Bonanza topped and then got a couple of gas pump helpers to rock and shake the airplane. Sure enough, gas started pouring out onto the ground. Currey never tops his tanks any more.

Sanders had flown the Bonanza some seventy hours and vowed it will do anything the factory says. The factory-advertised 172-mph. cruising speed, he added, is no exaggeration and can be easily attained at 8,000 feet in comparatively smooth air. Sanders has also flown the Bonanza in unusual turbulence and on instruments; he doesn't recommend either to the inexperienced pilot.

Watching Sanders fly the Bonanza, you know that beneath that deft, confident technique is a thorough knowledge of the Bonanza. "It has one of the cleanest glides you'll find," Currey explained. "We're at four thousand now—I'll just pull back the power."

Holding just enough back pressure to keep four thousand, Currey waited until the speed had dropped to eighty, then gently eased the nose over to a 90-mph. glide attitude. "Right there is where she really goes places," he confided, rolling on just enough back tab to keep the nose where he wanted it. The rate of climb indicator settled at four hundred feet a minute down. We seemed to sit up there and Currey, with a sly grin, looked casually around the country side. "Hmmm. So she's quit runnin', well, let's look around." Then he noticed Hudson Airport some four or five miles ahead. "Ah! There's a nice airport, we'll just head for that." Still holding 90 mph., we were alongside the field at 2,000 feet. Getting in from there was a cinch.

Don't get us wrong. The Bonanza is no kite. But with gear and flaps up and no power it seems to go and go. Drop the gear and a little flap, however, and it's a different story—if you have the speed down to 80 or 90 mph.

Take-Offs

While the Bonanza is clean and fast, it is not a "hot" airplane as far as airport flying goes. In fact, it is probably as easy to land as any personal plane with retractable gear. Any rumors you may have heard about needing brakes to overcome torque during take-off are also groundless. Someone may have used right brake, but that was merely because he used no rudder. Actually the newcomer will find his biggest problem is not flying the Bonanza—his chief source of concern will be in learning his way around the cockpit.

At present there is no check list on the panel. Before take-off, it's a good idea to start in the left side of the cockpit and run a quick check. First item is the fuel selector, which should be on a full tank. Moving up to the instrument panel, you check the flap selector, carburetor heat and mixture control, and set the trim tab at zero. The prop control is next and you test this by opening the throttle to 1,500 rpm. and then pushing the prop switch to low rmp. After a drop in rpm., run the prop back to high rpm. and check the mags at 1,500. With that done, you're ready to release the parking brake and swing out on the runway.

With the throttle opened smoothly, the Bonanza picks up speed in a hurry. The 165-hp. engine develops plenty of torque and ample right rudder is needed to keep the Model 35 headed straight down the runway. The nose wheel can be lifted off around 50 mph. and, when the air speed hits 60, firm back pressure will start the Bonanza flying. Once in the air, relaxing pressure permits the Bonanza to pick up speed. To raise the gear, you move a safety with your right thumb and then flip the landing gear switch to the "up" position. Two indicator lights on the panel's center tell you when the gear is up or down. For added safety, an indicator is installed on the floor.

The Bonanza climbs most efficiently at 100 mph. and will average 1,000 fpm. during the first minute after take-off. That's with the power pulled back to 25 in. of manifold and 2,050 rpm. Then, after passing a thousand feet, the rate of climb will ease down around 700 fpm.

The first time you bring the Bonanza into an airport pattern, regardless of how many planes you've flown, the chances are good you'll be high and fast. Our first let down was started from 2,500 feet about seven miles from the airport. We were indicating 140 mph. and I casually eased the power back to 20 in. of manifold and waited. The airport moved closer, the air speed dropped to around 120, and the altimeter had gained a couple of hundred feet. This was embarrassing, so I eased off more power and the horn blared. Sure, I knew the gear was up, but I couldn't put it down until the speed dropped to 100 mph. So I ended up in the pattern with 2,000 feet hoping the tower operator had a kind heart. Once the gear was down, it was an easy matter to get the speed down to 80 mph. for the final approach.

Later, Pinky Hutchins showed me how to do the thing right. In fact, Pinky showed us how to hit the pattern upwind at 140, get the Beech slowed to 100 and the gear down by the time you're ready to turn base. The trick is to keep the prop turning in high rpm. while you ease the power back to 15 inches or slightly less. That way the prop acts as a brake.

Approaches and landings are relatively simple. Once the gear is down the Bonanza is as easy to land as any plane we've flown. It has a solid feel with the wheels down and can be trimmed to hold 80 mph. nicely. While only 20 degrees of flaps are available, these bring you down fairly steep with power off. With flaps and wheels down the Bonanza will mush nicely and, if you level off a few feet high, will settle smoothly with no sickening drop. Safe landing characteristics and that squat tricycle gear will cover a lot of pilot errors.

Stability

The boys who write those ads about razors would call the Bonanza a clean-clean fast-fast airplane. With wheels and flaps down it stalls around 55 mph. The stall is smooth with no abrupt tendency to go off on a wing. With wheels and flaps up, the Bonanza pays off around sixty and will roll toward a wing if you hold her in the stall.

We don't see why anyone who has flown a hundred hours shouldn't be able to check out in the Bonanza after a couple of hours dual time. On the other hand, we don't think anyone with that limited experience has any business going cross-country in the Model 35.

(Continued on page 40)

TIPS ON TURBULENCE

(Continued from page 19)

by the time they reach the base.

Hence, plotting a course beneath a thunderstorm a pilot avoids much turbulence, lightning and hail. Then, too, flying low the core can be spotted by the roll clouds and the vast amount of rain falling from the center. This can and should easily be avoided.

For the private pilot, going over thunderstorms is just about out of the question. Even during winter, the tops of the towering cumulus clouds are above the service ceiling of most planes; saddlebacks between storms are usually so high oxygen will be required. Trying to fly high around storms presents real danger if a pilot ever tangles with one at great heights.

Lightning's Usefulness

Thunderstorm lightning, from the pilot's viewpoint, is more helpful than harmful. True, some planes have been hit. But, all in all, the chances of a strike are remote; some of the all-metal planes that have been struck suffered no major structural damage.

Lightning will show the storm's core. It is there that flashes occur most frequently. Lightning illuminates the ground at night, showing the height of the base and the conditions of the terrain. It shows the tops and extent of the clouds. Also, when approaching a storm from the rear, more horizontal than vertical flashes will be seen; approaching from the front the reverse is true. This bit of information is extremely helpful to the pilot for the flight path can be altered to fit circumstances.

Hail is a recognized thunderstorm danger, but there are odd conceptions as to where it is most likely to occur. Because part of it falls down the outside of the cloud, some pilots advocate flying through the thickest portion of the storm to avoid hail. This is wrong technique, to say the least.

In a thunderstorm, falling rain and hail chill the air, making it more dense than the surrounding air. This column of descending chilled air, we repeat, is the vicious counterpart of the updraft. It is readily seen that the majority of hail will be found in the localized downdraft, and the downdraft is in the center of the storm. The maximum amount of hail will be found at high altitudes in the center of the storm; the minimum at low altitudes away from the core.

Where there is a good deal of hail spilling out of the cloud and down its sides, a pilot can spot this by the greenish, almost weird hue that stands out from the black or white of the cloud. This green hail area should not, of course, be flown into.

ROOM FOR PLENTY of baggage is a feature of Cessna's new Model 190-195 series. The outside luggage door measures 25 by 22 ins. Baggage, for which a 200-lb. allowance is made, is accessible from cabin in flight.
—(Cessna Photo.)

Of all the thunderstorm dangers to the airman, turbulence ranks foremost. The violent uprush of air with its vigorous, concentrated return downdraft and the rolling, whirling air between these trunks can produce gust loads on a plane that exceed the safe load factor. The shearing effect on a plane is more popular misconception than actual truth, for there is no sharp line between the violent updraft and the equally violent downdraft, but an *area* wherein the air is being rolled by the two opposite traveling currents. It can be likened to a piece of putty being rolled between the palms of your hands, the palms, and their travel, being the drafts; the putty, the air in between. This rolling effect can be seen in the roll clouds at the base of a storm. Therefore, a plane leaving the updraft will enter the rolling area, being pitched and tossed about, and then will fly into the downdraft.

Turbulence presents a real problem to the pilot, but it is here that know-how pays off. An experienced pilot can safely take a plane through storms that would be actually dangerous if flown into by an inept pilot. Planes can be torn apart by a combination of high air speed and turbulence, and the experienced pilot knows that the severity of the gust is directly dependent on the speed in which the gust is encountered. The rule: *In turbulence slow down or break down.* There is no alternative, no other way or method of flying turbulence but that one—*slow down.*

The sturdy DC-3 transport will safely handle a 45-foot-per-second gust —which is quite a gust—at 140 mph. But this same gust can tear the plane apart at speeds above 230 mph., and if this gust is flown into at any speed above 140 mph. it can cause permanent set in the structure of the ship.

So when entering the turbulence of a storm, the plane must be slowed down, preferably to a point midway between cruising and stalling speeds. It is not advisable to slow it down to a speed just above stalling—in a storm a stall with its resultant high speed and pull-out can be fatal.

Always remember that your plane, at slow speeds, can outride most storms; but it cannot outride even some of the more gentle storms at high speed. The average private plane can really take it—if handled right.

Thunderstorms are a real hazard to cross-country pilots who know nothing about them. But, to the observant pilot with the know-how, they present no actual danger. For the private pilot with the know-how recognizes their weaknesses. Most of all, he knows and respects their strength. ★ ★ ★

PIPER'S NEW CUB

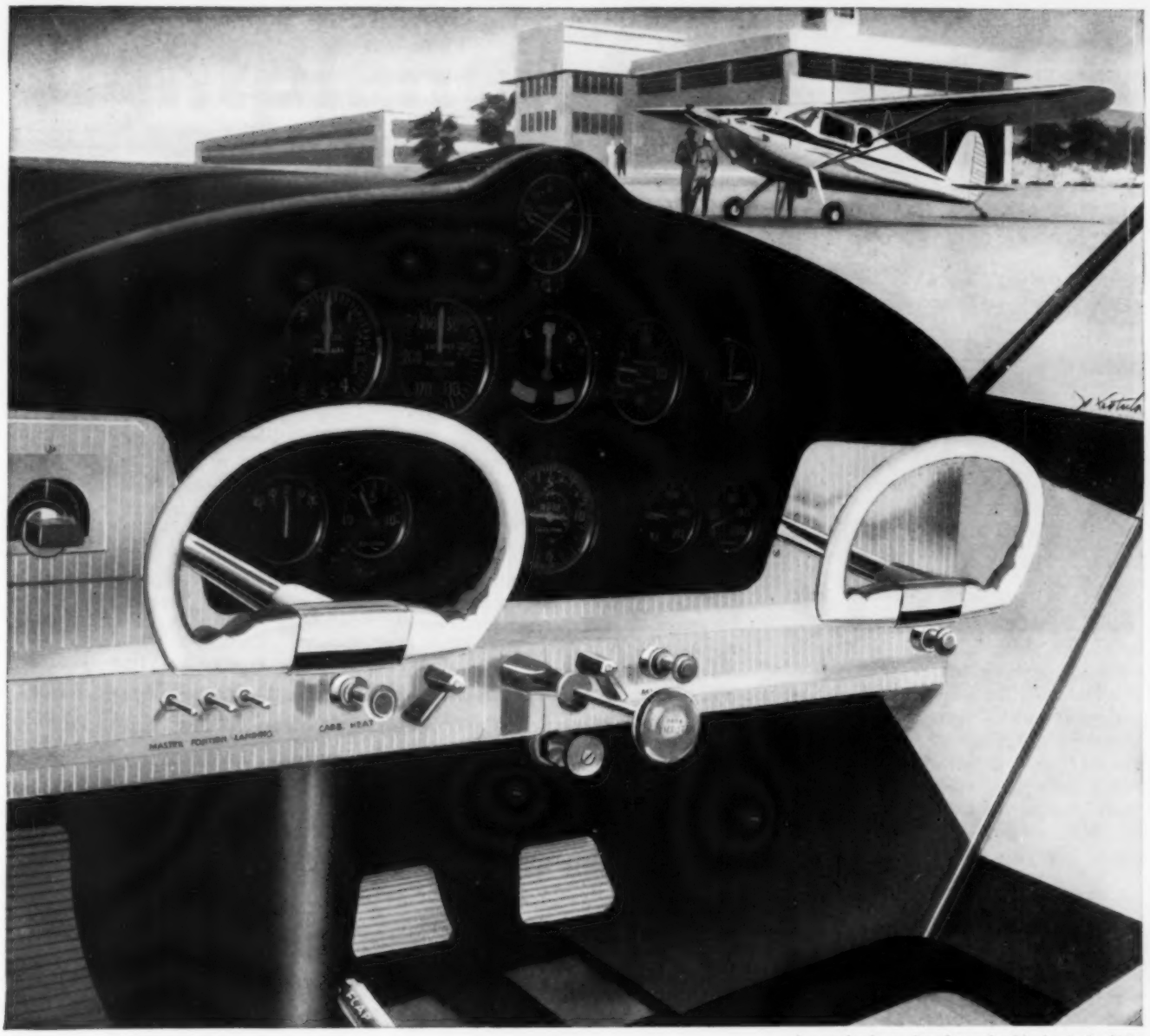
(Continued from page 15)

drop the propeller hub four inches, thus providing better forward visibility. This was accompanied by an elevation of the front seat, now a couple of inches higher than in the J3. Students can solo the Cub from the front seat. Going still farther, Piper put a folding back on the front seat, and foam rubber cushions were provided. There's more leg room—both seats were moved rearward several inches, and the rear seat appears to be slightly wider. A glass tube fuel gauge is installed in the cabin on the wing bulkhead.

Piper describes the Cub Special's new cabin heater as "highly efficient" as a circulator of heat to both front and rear seats to keep the cabin warm enough for plain suits without overcoats in temperatures as low as 10 degrees above zero. Rubber moulding is installed around door and window fittings for sealing purposes. The distinctive two-section folding door has been retained. Interior cabin sidewalls are removable aluminum sheets.

The PA-11's improved performance was gained from the full pressure cowl, similar to that on the Super Cruiser, combined with a refined landing gear, thinner lift struts and improved streamlining. Gross weight remains the the same at 1,220 lbs., but the PA-11's empty weight of 730 lbs. is 50 lbs. more than that of the J3, cutting its useful load by that amount to 490 lbs. The engine is equipped with a carburetor accelerator pump.

Both Piper factories at Lock Haven, Pa., and Ponca City, Okla., are now in production on the PA-11 ★ ★ ★



A completely equipped panel with the basic flight group and a Kollsman Direction Indicator Compass

The Best Instruments May Cost the Least

The manufacturer who installs good instruments in the first place eliminates the cause of burdensome servicing costs and replacements — both for himself, his dealers and the plane owner. Particularly since the introduction of the moderately priced Scout Instruments by Kollsman for private planes, the cost of the best instruments is frequently much less than the original purchase price and maintenance cost of the cheapest units. Further, good instruments add so much to the pleasure and the utility of flying itself that, again, their small extra cost seems smaller still. So look for Kollsman Instruments on the planes you plan to buy or fly.

KOLLSMAN AIRCRAFT INSTRUMENTS

PRODUCT OF

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"COMPLETELY FREE OF ALL CARBON..."

. . . Morris Jacobs operates the Jacobs Aviation Company, six miles northeast of Love Field, Dallas. A specialist in engine overhauls, he recommends Esso Aviation Oil to flyers. Speaking of engines in which Esso Aviation Oil was used, he says . . . "Lubricated areas were completely free of carbon and sludge residue . . . and engines were in very nice condition."

Jacobs Aviation Company has 2800 feet of lighted, surfaced runways, a large hangar and complete facilities for repairs and storage.

"We believe," Mr. Jacobs says, "in giving Texas flyers the best of everything . . . repairs, storage, sales and service . . . and that includes, of course, Humble-Esso Aviation Gasolines and Oils . . . first with flyers in Texas."

HUMBLE OIL & REFINING COMPANY

Esso

HUMBLE-ESSO AVIATION PRODUCTS

Lightplanes for Less *Through Engineering*

Significant accomplishments by cost-conscious engineers forecast many benefits to owners and users.

By SYDNEY CARTER

THE cost of personal aircraft must and can be reduced through engineering. This theme dominated the first SAE Personal Aircraft Meeting held in Wichita last month.

When the predicted cost reductions will reach the consumer level is a matter of conjecture, as the speakers were engineers, and their proposals, ranging from design simplification to increased aeronautical use of automotive parts, have yet to travel the long trail through drawing board, shop and test stand before their effects will be felt at the local airport.

From the aircraft owner's standpoint, however, cost-consciousness among engineers and technicians is cause for renewed hope and optimism.

One of the most encouraging papers in this respect was presented by four Beech engineers — W. A. Davidson, staff assistant to the manufacturing engineer, and P. H. Pelley, R. E. Saunders and J. W. Rix, production engineers—under the imposing title "The Relationship of Aircraft Detail Design to Tooling and Manufacturing Costs." These four have recently been designated by Beech as a production engineering team, assigned the job of reducing production costs on the Model 35 Bonanza by simplifying detail design without affecting performance or structural strength.

Significant Beech Gains

Already they have achieved some startling results. By switching from a fabric-covered metal rib stabilizer to a single spar, magnesium-skinned design, fabrication, installation and assembly time has been reduced from 24 hrs. 45.06 min. to 8 hrs. 3.92 min. per airplane. One of the Beech engineers estimated that when overhead and indirect costs were taken into consideration, each man-hour eliminated meant a dollar saving in production cost of from $2.50 to $4, which would mean a saving from reduced labor alone of from $41.65 to $66.70 on this one part. Additionally, the new design reduces the material cost per airplane from $15.45 to $11.18, cuts total tooling time from 5,876 to 2,477 man-hours, reduces the number of parts per ship from 86 to 28, the weight per ship from 27.04 to 20.10 lbs.

Similar results were achieved by design simplification of the differential control mechanism, carburetor air duct and valve assembly, push-pull rod assembly, rear seat frame, jack adaptor, front carry-through structure, elevator and trim tab, aileron and wing flap, the Beech engineers reported.

While some of these assemblies did not show a reduction in every phase as in the case of the stabilizer, overall savings for the ten parts amounted to a reduction in fabrication, assembly and installation time of 65 hrs. 50.34 min. per airplane, and of 8,562 hrs. in total tooling time, a cut in the number of parts per ship from 629 to 199, and a weight reduction per ship of 12.06 lbs. As against this, material cost per airplane was increased by $20.07. Translating the man-hours saved into dollars at $2.50 to $4 an hour, an overall dollar saving of $144.50 to $243.25 per airplane exclusive of reduced tooling costs has been achieved by design simplification of these ten parts.

Beech management has been careful to point out that the above engineering gains do not mean the price of the Bonanza will be reduced in the foreseeable future, but that savings through simplification of these and other assemblies offer the one hope of holding the price at its present level. However, application of these ideas to new designs could result in lower prices in the future.

In another paper on the subject of reducing manufacturing costs, Walter C. Jamouneau, chief engineer of Piper Aircraft Corp., compared composite structures with all-metal construction from the manufacturing standpoint, and found that the latter offered many advantages. He compared both material and labor requirements for a hypothetical fuselage structural shell, and found that metal construction came out ahead in both departments with a material cost of $53.26 as against $90.74 for composite construction, and a labor requirement of 11.20 as against 20.51 man-hours.

Jamouneau emphasized, however, that his analysis dealt only with manufacturing aspects, and contended that a complete evaluation of the problem would bring out many points in favor of the fabric-covered airplane.

Propeller Goal $1 Per Pound

Further hopes of better performance at lower prices were offered in the propeller field, with John F. Haines, director of research, Aeroproducts Division, General Motors, expressing the belief that a two-position propeller for two-place aircraft and a fully-controllable constant speed propeller for four-place aircraft could be built to sell for as little as $1 per horsepower. The big hope for reducing propeller costs, Haines pointed out, lies in new blade materials, such as laminated fiberglas which will reduce weight by as much as one-third.

Noise reduction came in for considerable discussion. The propeller men stressed the need for larger, slower-turning props to achieve this end. The obvious solution, they pointed out, was a geared engine which could combine the efficiency of high engine speed with the advantages of low propeller speed. Such a combination, they said, would not only solve the noise problem, but would result in more efficient propulsion.

D. S. King, assistant chief engineer, Lycoming Division, Aviation Corp., recounted his company's experience with geared engines, and expressed the belief that such engines were the ultimate solution if adverse public reaction to the geared engine could be overcome. He said that Lycoming was working at the present time on a 165-hp. geared version of its 4-cylinder 125-hp. engine, and that it offered considerable advantages both from the standpoint of weight and installation space required. He estimated cost would run about the same as for a direct drive engine of comparable horsepower.

Auto Engine for Single-Seater

The use of automotive engines in aircraft to reduce power plant cost was

discussed by Joseph C. Funk of Funk Aircraft Co. and Al Mooney of Mooney Aircraft Co. Funk's experiences with the Ford A and B engines were enough to discourage even the most ardent advocates of orthodox automotive engine adaptation, but Mooney appeared to be having considerably greater success with the 24-hp. engine now being used to power the Crosley car. He is experimenting on a single-seater aircraft design using the little engine.

Mooney pointed out that the Crosley engine was in itself an adaptation of an auxiliary aeronautical power plant and that he therefore did not have to face the problem of weight reduction and excessive modification that caused so much of Funk's difficulties. He said he had just completed a 150-hour bench test of the engine, and that it stood up remarkably well.

One of the interesting facts revealed by Mooney was that he was using a wedge-belt to drive the propeller, thus permitting a reduction in rpm.

Two interesting papers dealt with an auxiliary power plant for gliders designed by E. H. Rowley, chief of flight test, Boeing Airplane Co., and a simplified helicopter now being built in his basement by Charles M. Seibel, a Boeing engineer.

Folding Blades for Glider Engine

Rowley's power plant, which is being built by Jacobs Aircraft Engine Co., is a complete unit weighing only 80 lbs. complete with propeller, fuel for 1 hr. of flight, and pedestal mounting, and is designed so that it can be attached to or demounted from any glider by one man in a matter of minutes. One of its outstanding features is an automatic propeller which *folds* when the engine is stopped during soaring and *opens* when it is started.

The engine itself is of twin-cylinder, opposed-piston, four-cycle design, and produces 24 hp. at 4,500 rpm. A two-to-one reduction gear is used to avoid excessive propeller speed. The engine is cowled completely and cooled by individual jet pumps.

The fuel supply is contained in a monocoque pedestal mount, and the entire unit is attached to the glider by four pins.

A prototype model of Rowley's engine has been completed and ground-tested, with flight tests expected to start in the near future.

The Seibel helicopter is designed to eliminate the need for cyclic pitch control, and substitutes in its place a two-part, hinged fuselage. In effect, this gives the craft two centers of gravity. Stability in hovering flight is provided by changing the relative position of these two centers of gravity.

Seibel exhibited a small model of his machine which he flew successfully on a boom arrangement for the engineers attending the meeting. He reported that he is now building in his basement a one-man version which will weigh 800 lbs. and will be powered by a 65-hp. engine. ★ ★ ★

BONANZA

(Continued from page 35)

Not that the sleek, all-metal Beech is vicious. Far from it. In our opinion, you could best compare it to a fine horse. In capable, experienced hands, a thoroughbred will perform like a puppy and run like the wind. But let a bumbling novice get in the saddle and it's a different story.

Or perhaps this will make it clearer. Speeding along with the Bonanza trimmed for an easy 140 mph. cruise, roll into a gentle bank and take your hands and feet off the controls. Gradually the bank will steepen and the air speed will climb. By the time you've turned 180 degrees the airspeed will be nearing 200 and gaining fast. Throttle back to 105 mph. for turbulence and gusts will show you 190 in a wink.

That means purely and simply an inexperienced pilot who flies into weather is headed for trouble and fast. Even an experienced instrument pilot will be kept busy because it's hard to make a good, timed turn in the V-tailed Beech. The little plane is so darn fast and handles so easily that some people are going to develop a superman complex and go busting into weather they'd never tackle in anything else; the results are going to be serious.

As we've said earlier, the Bonanza is our idea of the finest all-around 4-place airplane now in production. You can't say too much about ease-of-entry, cabin comfort, low noise level, ample baggage load and performance. It could use more leg room and better ventilation. The $7,975 price is not out of proportion with present standards and before the war an airplane like the Bonanza would have sold for a lot more. It is not likely Beech is making any profits on the Model 35 at present.

If you're one of quite a few waiting for a Bonanza, we envy you openly. It's a grand airplane, one designed for going places and not for droning around an airport. If you're an experienced pilot, we'll say you are in for more economical pleasure than you've ever known. If you've logged a couple of hundred 65-hp. hours, hire somebody to fly this V-tailed thoroughbred for you until you can give it the technique it deserves for the best performance. ★ ★ ★

JUST AMONG OURSELVES

(Continued from page 10)

hourly rates now being paid to most contractors. Some popular beliefs to the contrary, the GI program is not a big money maker even under present rates. Only the super-efficient operators with low overhead are making substantial profits, while most of them are realizing a very small return on the investment and many are actually losing money.

The second development is one that has been brewing for a long time and just now is coming into the light of day. The Veterans Administration has awakened to the fact that far too many GI schools are leaning on the old WPA shovel, failing to provide adequate training and carrying on submarginal operations which are beginning to reflect on the conscientious operators and bringing the entire program into general disrepute.

The Veterans Administration is settling down from a period of confusion and showing signs of doing business like many other branches of the Federal Government. Recent VA investigations have produced too much evidence pointing to "joy ride" operations in which the vet washes himself out or is washed out with only partial training and no ratings or license. Likewise ground school training in many cases has not been given at all or else provided such a low standard it's practically worthless.

The warning has gone out that groups outside of aviation are beginning to attack the program which may result in severe regulation, curtailment or complete elimination by the Vets Administration if the operators cannot police themselves.

Once again these columns point up the crying need for a strong national organization of fixed-base operators. The National Aviation Trades Association, which did such a creditable job of self-protection and self-policing under the old CPT and WTS programs, can repeat that experience in the case of GI flight training. A strong national association of operators can alone preserve fair and reasonable rates through centralized, intelligent negotiation with Washington VA officials. Similarly, an active national association, strongly organized on the state or regional level, can alone eliminate from the training barrel the few rotten apples that threaten to undermine the entire program.

Unless the operators wake up and unite now, one of the few remaining economic props now supporting about 90 per cent of them will be knocked out from under their feet—a blow from which hundreds will never recover. Time's a-wasting! ★ ★ ★

EDO DEALERS—Tell the world you sell floats. Put these signs to work. They are always on duty, to tell the public where you are and what you sell.

Smart-looking with aviation styling, these heavy-gauge metal signs make an attractive advertisement for any dealer and float base operator. Edo had these signs made up in quantity, to help promote float flying, and they are available to you through your distributor at cost plus mailing.

DEALER'S SIGN: 28 x 20 inches, with blue and silver floats on white background. The words "Authorized Dealer" stand out bold in red. Cost to you: only $1.50 each.

ROAD MARKERS: Come in sets of ten, with five rights and five lefts. Each sign is 6 x 18 inches, with blue and white lettering design. Easily visible by motorists. Cost: only $2.50 per set of ten.

Edo FLOATS
FOR REAL FUN IN FLYING

EDO AIRCRAFT CORPORATION 320 Second Ave., College Point, Long Island, New York

Taking delivery in the dead of winter, The David Clark Company, Inc. of Worcester, Massachusetts, maker of "Straightaway" products for men, is proving the year 'round versatility of the Republic Seabee Amphibian.

They report . . . "easy for our people to learn to fly . . . already used to bring buyers" . . . and for quick visits to suppliers . . . "to a couple of lakes full of trout and salmon."

You, too, will be interested in this "New design for better living."

"STRAIGHTAWAY"

for Work

or Play

New Design for Better Living

ERNEST L. OLRICH, JR. . . . Sales Mgr. of The David Clark Company, Inc. Special Research and Development Div. of Munsingwear Company . . . lauds value of the De Luxe Seabee for "our quick contacts with suppliers and buyers" . . . "a natural for maintaining liaison with other divisions" . . . also stresses playtime plus . . . "only hour and a half by Seabee to favorite salmon lakes reached before only by two day combination air train, buckboard, and canoe." . . .

"For Business . . . or Sport nothing compares with this VERSATILE amphibian"

The one personal plane which meets the dual requirements of today's hard working, sports loving executive . . The Seabee all metal amphibian operates from field or stream, thus multiplying safety factors many fold . . Relaxing comfort in the luxurious four place cabin with plenty of head and leg room . . The 215 H. P. Franklin gives speed and range enough to get you through with ease and economy . . Controllable and reversible pitch propeller, and hydraulically operated flaps and landing gear are standard . . . and assure better take-offs and landings . . . . . Price $6000 F.A.F.

FREE . . . Your copy of "Transportation Unlimited" Write Dept. G-1, . . . Republic Aviation Corporation, Farmingdale, Long Island, New York. . .

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A PRODUCT OF REPUBLIC AVIATION

Makers of the Mighty Thunderbolt

This story of The David Clark Company's effective use of the Seabee is being told to America at large through leading national and trade publications.

Republic's Blue Ribbon Roster of Seabee Distributors and Dealers is piling up new evidence day by day, of the versatility of this grand amphibian for business or sport.

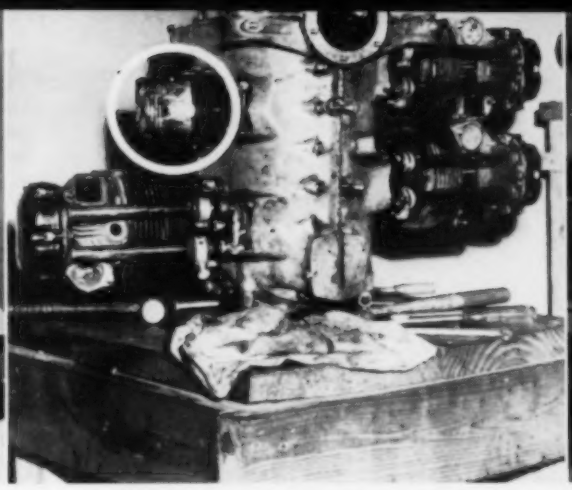
Due to the immediate acceptance of this revolutionary plane, these dealers are adding new customers and, through sales, service and exacting maintenance, they are making new enthusiasts for an aviation-minded, progressive America.

Perhaps your territory is still open for dealership . . . . . write or wire for particulars. Dept. R Republic Aviation Corporation, Farmingdale, Long Island, New York. . . . . .

De Luxe Seabee

A PRODUCT OF REPUBLIC AVIATION

Makers of the Mighty Thunderbolt



Morris Jacobs, left, vowed long ago not to tolerate slip-shod methods in his shop. Center is an engine allegedly overhauled by another shop; inset shows a faulty piston which had not been replaced. Mechanic at right is inspecting a crankshaft; inset shows method of inspecting tolerance in a rod.

—(Jacobs Aviation Photos.)

Super Service

SILHOUETTED in the late afternoon sun, a Swift 125 settled to the runway at Highland Fark Airport in Dallas and taxied briskly to the hangar that houses Jacobs Aviation Company.

"Put 'er up for the night," the owner ordered as he climbed wearily from the cockpit. "I'll be out early tomorrow morning, so have her gassed and ready to go."

It was already past quitting time. but this dust-covered Swift got prompt attention. A quick cleaning and "gunk" job put the shine back in dull metal. The oil-flecked windshield was washed and the cabin vacuum-cleaned and deodorized. Then oil and tires were checked, the Swift was gassed and rolled into the hangar.

Next morning at eight o'clock sharp the owner drove up, ready to start the next leg of his selling trip. He stared in amazement as his plane, now clean and shining, was wheeled out. "I didn't want it cleaned," he blurted. "You can't charge me . . ." There was no charge for the "face-lifting," the visitor was told. That was just part of the company's service. "His eyes bugged just like somebody had slammed him across the fanny with a board," is the way Morris Jacobs remembers the incident.

That sort of thing is a routine occurrence at Jacobs Aviation, where stocky Morris Jacobs is doing his best to prove aviation repair can match or better the automobile business when it comes to service and courtesy. He's had ample time to see what's wrong with airport sales and service. Since Jake went to work for $60 a month at a Louisiana airport in 1936, he's seen private fliers get plenty of raw deals. And poor service wasn't just confined to the private flier. There was the day an Eastern Air Liner limped in with one engine out and a useless prop windmilling. The worried captain called in from several miles out, asked the tower to get a fire and crash truck ready in a hurry. Jake's boss owned the airport fire truck and Jake, like any good $60 man, answered the phone on the first ring. Sure, he'd tell the boss. They'd get out a truck.

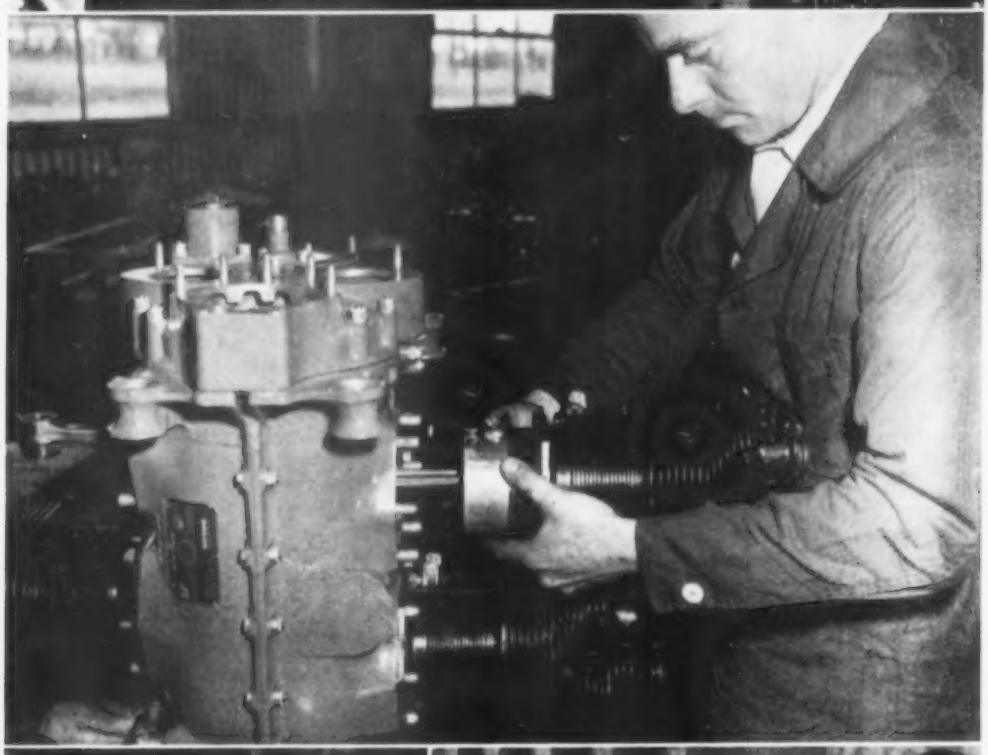
The boss was playing cards when Jake hurried in. He paused to hear the news, then snorted. "Nuts to Eastern Air Lines!"

Of course the story has a happy ending. The airliner made a safe landing and waited patiently until the worried tower operator located a tow from someone besides Jake's boss.

Shortly after this incident, he came to Dallas and worked for American Airlines. In his spare time he hung around private airports and was soon doing part time work for Mac Davis at Hudson Airport. "Mac was having a rough time keeping private flying going during the early days of the war," Jacobs recalls. "His mechanics would tear down engines for overhaul, then take off somewhere and leave the engines torn down." Jacobs moved in to help Davis keep his planes going, got interested in repair work, and soon opened his own overhaul shop to handle WTS engine repairs. When High-

Jacobs is shown at left below turning out a new sparkplug insert. Instrument at center tests valve spring tension. Enamel is sprayed on cylinder heads which are then baked.

—(Jacobs Aviation Photos.)



land Park Airport was created, it gave Jacobs the location he wanted for his repair service.

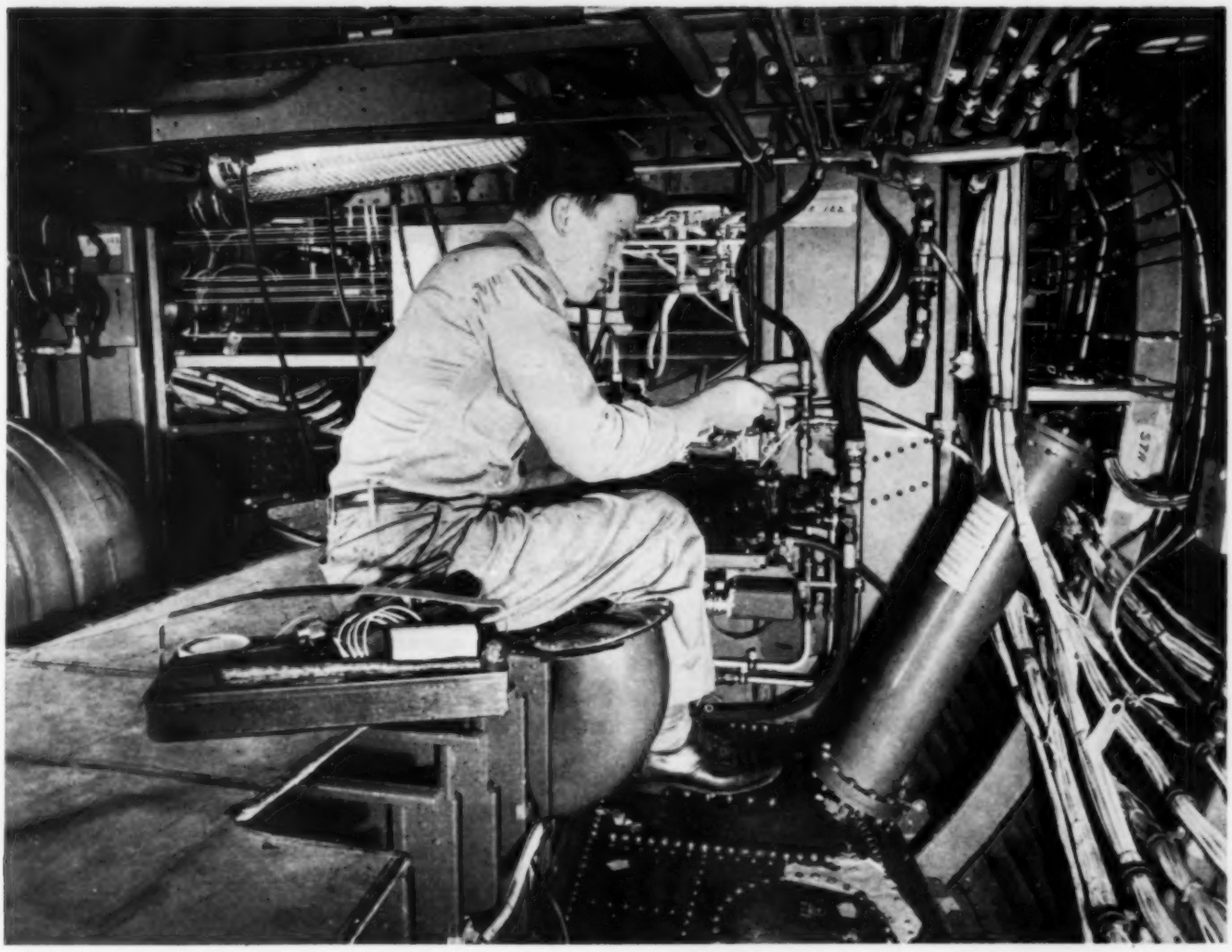
Since Jacobs is stressing the need for reliable service, it seemed quite logical to ask how an owner or pilot can be sure of efficient and thorough overhaul and repair work. Jake had a ready answer for this. "You can judge the kind of work you'll get by the looks of the shop and the sincerity of the men who do the work," he explained. "If the shop and tools are filthy and poorly kept—look out. If the mechanics are surly and don't enjoy their work—look out again. The best milk, you know, always comes from a contented cow!"

If you plan to have an engine overhauled at a new or unfamiliar place, Jake suggests that you first look around the shop. See if it has proper equipment, an adequate cleaning system and vats where all parts can be cleaned. Look also for equipment needed to stone and reface valves. If an operator doesn't have the proper tools for dismantling an engine he may mutilate a certain part by trying to get it out of the engine. "If he can't get it out, he may just leave it in place," Jake added. "If he mutilates the part, it will have to be replaced and it's always the owner who pays for that!" Equipment is important, Jake stressed, but "know-how" is just as important. "If a man knows his business and is sincere, you'll come out okay," Jake declared.

One way to be sure an operator has this "know-how" is to ask, "For whom have you overhauled engines lately?" If the operator says he recently finished a job for Mr. Throttlebottom, the thing to do is look up Mr. Throttlebottom and see how that engine is holding up. "And it doesn't hurt to drop out during an overhaul and see how your engine is coming along," Jake suggested. "If the parts are dirty and poorly handled, you can expect trouble. Besides, as an owner you should know what happens to an engine during an overhaul. And you should have a good idea how an engine works. Then, if you're a 'throttle blaster,' you'll suddenly wake up and see what happens to your engine when you slam that throttle open suddenly." Here Jake frowned, as though he momentarily had all throttle blasters in the room. "Blasting a throttle is just like lettin' a bull butt you," Jake groaned. "It doesn't put the load on the entire engine like some people think, it puts it on one cog at a time." For emphasis, he hooked his little fingers together and yanked. "Just like that—phhht!"

Have you ever had an engine over-

Top photo at left shows power tool for stoning valve seats. Reassembly (center) must be done painstakingly when cylinder heads are installed. Note cleanliness of shop and materials. Testing devices include this meter to synchronize the magnetos (bottom).
—(Jacobs Aviation Photos.)



THROW AWAY THE LEFT-HANDED MONKEY-WRENCHES

To service and maintain the double-decked Boeing Stratocruiser there's no need for odd-size tools or midget-size men.

Here you see a husky mechanic working in complete comfort and with room to spare in the main accessory compartment under the control cabin floor.

Maintenance time is cut sharply on the 80-passenger, 340-mile-an-hour Stratocruiser because all vital parts are directly accessible and efficiently grouped. Parts to be bench-tested are easily removable and can be changed quickly. And with wing flaps down, it's no trick at all to service the control cables, electrical wiring and fuel lines along the rear spar.

These and a number of other advanced design features contribute to the Stratocruiser's amazingly low direct operating costs, its greater safety and utility and superior passenger comfort.

More than 2000 man-years of research and engineering have gone into the design of the Boeing Stratocruiser. It combines proven sturdiness and reliability with aerodynamic advancements found in no other aircraft.

Boeing is building fleets of Stratocruisers for these forward-looking airlines:

PAN AMERICAN WORLD AIRWAYS

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NORTHWEST AIRLINES

AMERICAN OVERSEAS AIRLINES

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BRITISH OVERSEAS AIRWAYS CORPORATION

BOEING

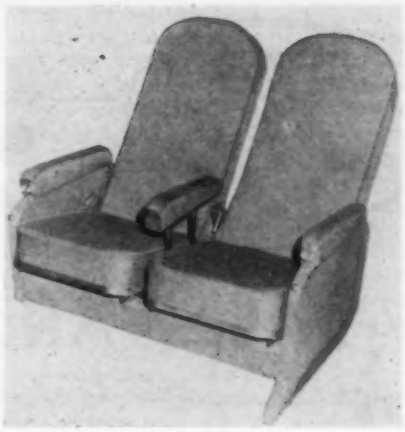
STRATOCRUISER

Never again will you be able to buy
aircraft and engine parts so cheap
WE HAVE purchased a large quantity of surplus single- and multi-engine military aircraft of all types. They are being disassembled and a tremendous stockpile of aircraft and engine parts is being accumulated. You can buy these parts at only a fraction of their original cost. Here they are—hundreds of thousands of large and small items of all descriptions: aircraft, engine and accessory parts—radio and other electronic equipment—hardware, etc.—at prices you cannot afford to overlook.
They're going fast, however—so write, wire or phone at once. Better yet, come yourself.
HARRY A. HAMMILL • Altus Airport • Altus • Oklahoma

hauled and then, a few flying hours later, have the darn thing start acting as though it had never been touched? According to Jake, the chances are good it wasn't. Just recently, for example, an owner brought in a Culver Cadet that had been "overhauled" 6 hours previously by another shop. The gripe: This freshly overhauled engine wouldn't "turn up," temperature ran in excess of 200 degrees and, when turning the engine over by hand, it felt stiff. Jake inspected the engine and told the owner it needed an overhaul. Right there the owner hit the ceiling. And well he should, for news like that isn't nice after you've just paid out $300 for an "overhaul."

Naturally the owner was leery. As a fair deal, Jacobs offered to tear the engine down and, if he found nothing, to reassemble it at no cost. Tearing it down, mechanics found where a piston had galled on the lower side. All compression was blown through this gap. looking farther, they found no signs of a decent overhaul. Old carbon was still in cylinder heads, the interior had never been cleaned, and it was quite apparent the crankcase had never been checked for cracks. Cylinders had never been checked for taper; rings had been fitted to the largest tapered part of the cylinder. Consequently, when the piston was at the bottom of its stroke, galling resulted. Overheating and erratic performance were also caused by improperly timed mags—the right mag was off 5 degrees in timing and the left was off 8.

That sort of service will unsell the public on personal aviation. Give an owner a square deal and prompt, courteous service and he'll stay sold on aviation. Walk through the neat, well kept operation at Highland Park Airport, see his "contented" and efficient employes, and you'll see Jacobs practicing what he preaches. ★ ★ ★



NEW SEAT DESIGNS with hydraulic mechanism for transport aircraft have been perfected and marketed by Texas Engineering & Manufacturing Corp., Dallas. They include standard singles 24½ in. wide for 21- and 24-passenger ships; doubles ranging from 28 to 48 in. wide for 21, 24, 28, 30-passenger DC-3's and DC-4's. Temco seats' standard finishing includes Bedford Cord fabric, airfoam rubber padding over springs, Wedjit studs, ash trays, white cotton head and arm slip covers.

DEALER NEWS

A clock face with its hands pointing to official sunset for the day is mounted in the office of New London Flying Service, New London, Conn. This information is difficult to obtain at most airports and other operators might be wise to follow suit. . . . Leading officials of the National Flying Farmers' Association recently inspected the Aeronca factory at Middletown, Ohio, and predicted a steadily increasing use of personal planes on farms and ranches. There are now 30 state flying farmer organizations in the U. S. . . . The first of 12 Stinson Voyagers was recently flown from the U. S. to Brazil aboard a four-engined Pan American World Airways clipper. . . . American Gas Accumulator Co., airport lighting manufacturers, have taken delivery on two Navions. The planes will be used by executives and district managers to insure prompt on-the-spot service for sales and engineering service. . . .

Modern Charm in a Centuries-Old Setting . . . **Sophisticated vacationers admire THE FLYING L's graceful blending of the old and the new . . . The smart guest cottages whose modern design and decoration are the subject of newspaper and magazine articles . . . Each with its two beautifully furnished bedrooms and two baths, spacious living room with wood-burning fireplace, shaded patio. ☆ And close by, one of the most attractive outdoor swimming pools in the Southwest. . . . Riding, fishing, hunting, too . . . THE FLYING L RANCH is the first of its kind in an aviation-conscious world, for this 550-acre dude-and-frontier ranch has its own modern airport — BANDERA AIRPARK — which makes THE FLYING L convenient to everyone who flies. . . . Runways are 2,700 ft. and 2,500 ft. . . . Gas, oil, storage, repairs, transportation, flight instruction are conveniently available.**

Write, wire or phone for daily and monthly rates in the guest cottages or the ranch house.

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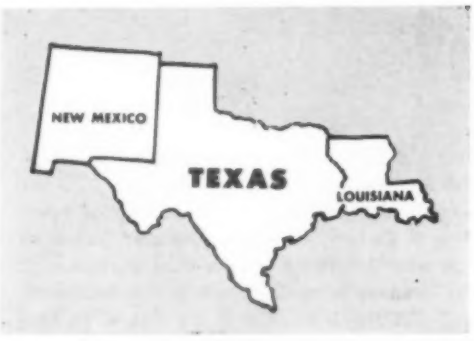

☆ **TAFT**

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•

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"THE DEPARTMENT STORE OF THE AIR"

Direct factory dealers for

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Hunter 8-1278 L-4111

The Safe Flight Indicator, mentioned last month, is currently being tested by seven aircraft manufacturers on production and experimental aircraft. These include Aeronca, Beech, Bellanca, Fairchild, Grumman, North American and Piper. . . . John W. Myers, who operates the Alaska Fur Company at Albany, N. Y., is using an Aeronca to speed up business. Myers collects furs from trappers in the northern Adirondacks, flies them to Albany and on to New York, cutting his traveling time in more than half. . . . Jesse M. Haynes uses an Aeronca to inspect petroleum pipe lines from Blackwell, Oklahoma, to Kansas City, thence to Chicago and back to Blackwell. He makes one round trip each week.

Aircraft Service Corporation, which operates an extensive shop at Bradley Field, Hartford, Conn., recently purchased TACA Airways' engine and aircraft repair shop at the 36th St. Airport in Miami, Fla. Aircraft Service will furnish TACA with routine daily maintenance at the Miami stop and will also continue to operate the Hartford shop. The company will also engage in overhaul, repair and conversion of engines and aircraft for airlines, other commercial users and private owners.

Bulletin boards for aircraft service operators are being furnished by Kollsman as part of the Square D Division's promotional activities. The boards are made of weather-resisting masonite on which notices may be tacked or written in chalk. They are 3 by 5 feet in size and will have the operator's name printed across the top in a contrasting color. A Kollsman reminder is printed across the bottom. Boards are furnished at $10 each. Kollsman has also announced a new ready reference catalog digest on the postwar Kollsman line of standard aircraft instruments. This folder offers the engineer, purchasing agent, operator or plane owner complete information on ranges, weights, mounting requirements, and comparable AN types on eighteen separate types of flight engine instruments. Both the bulletin board and catalog are available on request to Kollsman Instrument Division, 80-08 45th Avenue, Elmhurst, N. Y.

A commercial helicopter dealership has been awarded Southern Arizona Airlines, Inc., of Tucson, Ariz., by Bell Aircraft Corporation. The dealership agreement, second to be announced by Bell, represents an exclusive franchise for Arizona. Edwin J. Montgomery, president of the Arizona firm, said his company has taken delivery on one Bell helicopter, has two more on order, and will operate the craft in general charter work. Southern Arizona Airlines is now operating a 20,000 square foot exclusively helicopter base at 15th and Broadway in Phoenix and will soon inaugurate a similar base in Tucson.

Operators with an eye for building up both business and good will should look over a copy of "Under the Hood," four-page newsletter regularly published by Reading Aviation Service of Reading, Pa. Mimeographed on inexpensive paper, the newsletter is filled with breezy news about the people who fly at Reading Aviation. It also contains timely tips on flying. For example, a winter issue had two paragraphs on icing dangers. Almost any operator can put out a newsletter similar to the Reading publication at very small cost if he has access to a mimeograph. It's worth trying.

A new private airport is going in at Hereford, Texas, under operation by Hereford Flying Service, Luscombe, Aeronca and Funk dealer. Jesse B. Wafford is the operator with D. Neumayer and Jack Gregory as associates. They have a 160-acre field with 3,500 and 2,800-ft. strips.

Acting as purchasing agents for China National Airlines, the Fu Chung International Corporation recently purchased a complete line of aircraft maintenance and test equipment from Pacific Airmotive Corporation. China National's main overhaul and maintenance shop will be located in Shanghai.

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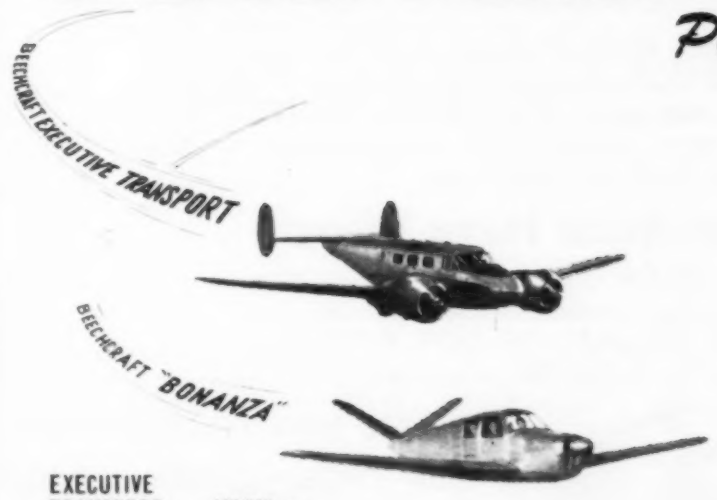

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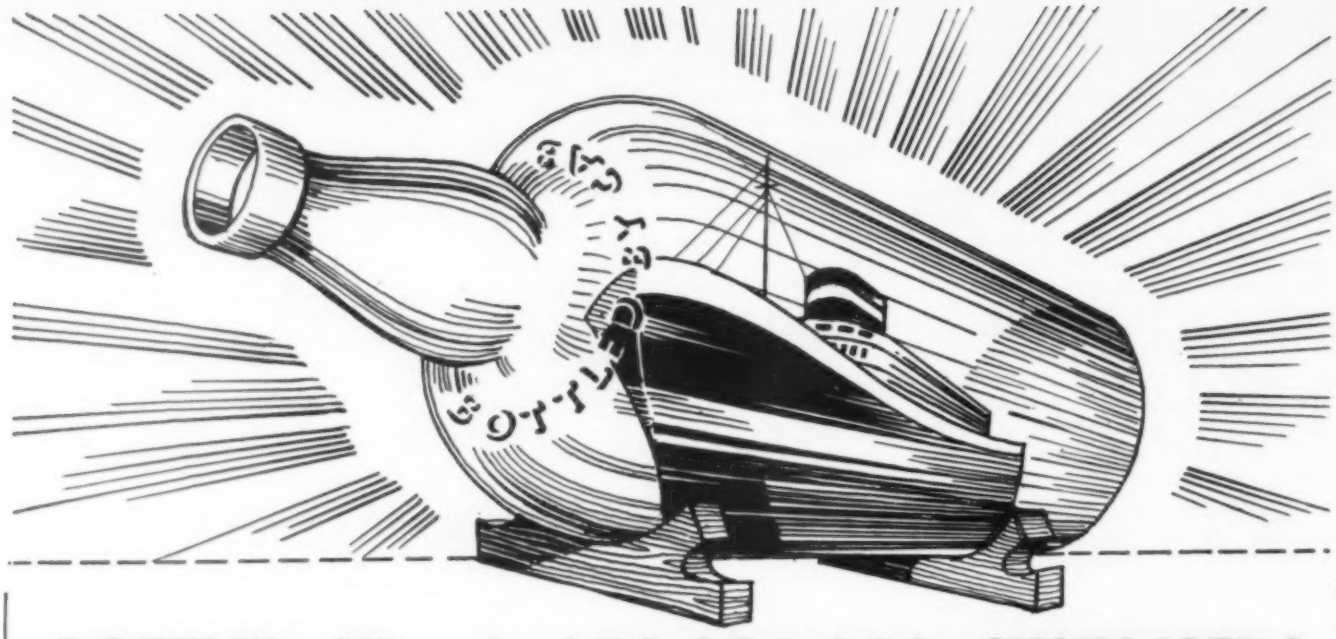

BOTTLED UP: A $50,000,000 CUSTOMER!

The customer is the American steamship companies who want to fly the trade routes which they have pioneered and developed.

$50,000,000 is what the steamship lines were prepared to spend on aircraft and equipment to start operations over these routes.

The aviation **industry lost this cash customer** when the Civil Aeronautics Board denied the shipline applications.

WHY?

One reason given by the Board in its recent decision on steamship eligibility reads "by reason of their superior resources and extensive facilities for solicitation, such carriers would often be the possessors of powerful competitive weapons which could enable them to crush the competition of independent air carriers."

But the Board expresses not the faintest alarm over the fact it has granted this right to fly to FOREIGN airlines controlled by FOREIGN steamship interests who have the same "POWERFUL COMPETITIVE WEAPONS", and who are now using them aggressively to the detriment of both our airlines and our shiplines.

U. S. Ships Also Must Have Wings

In Order To:

1. Protect and expand our foreign commerce which annually provides TEN BILLIONS OF DOLLARS OF OUR NATIONAL INCOME and steady jobs for 3,500,000 Americans.
2. BUILD A STRONG, MODERN MERCHANT MARINE WHICH TODAY MUST FLY AS WELL AS SAIL.
3. CREATE NEW MARKETS FOR OUR ORDER-HUNGRY AVIATION INDUSTRY.

THE SEA-AIR COMMITTEE

American President Lines, Ltd. American South African Lines, Inc. Atlantic, Gulf & West Indies SS Lines. Grace Line, Inc. Matson Navigation Co. Moore-McCormack Lines, Inc. Oceanic Steamship Co. Seas Shipping Co. United Fruit Co. United States Lines Co. Waterman Steamship Corp.

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WHAT'S NEW

Platinum-electrode spark plugs for Beech Bonanzas and North American Navions are among new lines of plugs being introduced to the aviation market by the BG Corporation. Others include improved plugs for all lightplane engines.

Low-cost floats, listed at $985 per pair, have been developed for seven popular lightplanes by Edo Aircraft Corporation. The new all-metal floats, designated as Model 1400, supplement the old Model 1320 and are designed for installation on the Aeronca Chief and Champion, Luscombe Silvaire, Taylorcraft and Piper J-3 and PA-11 Cub Specials.

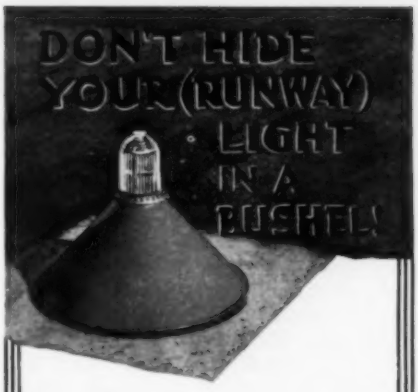
A mechanical starter for lightplanes, called the Righter "Kick" Starter, employs foot-power push for starting and has a positive release which disengages instantly if an engine backfires. The complete unit, weighing less than 8 pounds, is easily installed and requires no costly changes or accessories. The first model was for Luscombe 8A aircraft but units for other popular lightplanes are being engineered. Manufacturer is the Righter Products Co., Glendale, California.

Lightplane fenders which clamp rigidly to the landing gear without cutting or welding have been developed by Consolidair, Inc., of Alliance, Ohio. Priced at $38.50 a pair, the fenders are available for the Cessna 120 and 140, Aeronca Champion and Chief, Taylorcrafts, and Piper J-3's. The installation leaves tires and brakes open for inspection and servicing. Consolidair is also marketing a set of three Sure Anchor mooring stakes, complete in a durable plastic carrying bag, for $5.98. The stakes are made with a solid cast aluminum screw point riveted to a steel tube shank and are painted in red enamel.

Airborne radar sets have hit the surplus market, Arrow Sales, Inc., 59 West Hubbard St., Chicago, having offered new APS-13 lightweight radar sets, for visible and audible warning of the approach from behind of other aircraft, for $15, and new APS-15 radar sets (90 tubes each) for search, precision ranging, bombing and long-range homing and navigation, for $500. Also offered is an AN/APN-9 Loran navigational aid for $100.

PERSONALLY SPEAKING—

WILLIAM D. STROHMEIER, aviation writer and publicist and formerly vice president of Charles H. Gale Associates, Inc., has opened his own public relations and sales promotion firm in New York City. . . . JOE D. EVANS, until recently in charge of flight, experimental and customer service departments at Globe Aircraft Corp., is now in charge of maintenance, repair, and overhaul shops at Clearview Airport, Dallas. Evans is a CAA-designated aircraft maintenance inspector. . . . GEORGE B. SHAW, former General Motors executive, has been named director of commercial sales for the Glenn L. Martin Company. . . . A. W. WHITAKER, 5001 N. E. Union Avenue, Portland, Ore., has been named an authorized distributor for Kollsman aircraft instruments. . . . MARK R. MILLER has been appointed commercial sales manager for Consolidated Vultee Aircraft Corporation. . . . CHARLES M. COOK was appointed to the domestic and foreign commercial sales staff in the corporation's Washington office and ROBERT L. MUSSEN was appointed manager of Consolidated's San Diego division. . . . HERBERT M. HUCKE is now sales manager of the newly consolidated RCA Communications and Specialty Section. . . . Bell Aircraft Corporation directors, at their annual organization meeting, elected HARVEY GAYLORD treasurer. All other officers were re-elected. . . . JOHN M. SITTON has assumed responsibility for all information and releases regarding Bendix personal aviation sales. . . . JOSEPH A. (JOE) WASSON has charge of the recently-opened Dallas, Texas, service office of United States Aviation Underwriters. Associated with him will be ERNEST A. SCHOEN and SHIRLEY A. CARPENTER, both experienced in aviation coverage.



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Navion Service Assured to Owners; $5,800 Loss Per Airplane Indicated

Production of Navions, halted temporarily in April, was completely discontinued in May when North American Aviation, Inc., announced it was dropping the personal plane for financial reasons—NAA lost about $5,800 per airplane—after 841 of 1,110 Navions produced had been sold. Sales of the remainder will continue at $7,750 FAF and distributors and company officials, meeting late in May, announced a policy of continuing maintenance and servicing of all Navions, the company pledging arrangements for an adequate source of spare parts and a policy of issuing the customary factory warranty with each Navion sold while continuing to honor its warranty on all airplanes.

North American has offered to sell Navion design and manufacturing rights but discussions with a number of interested manufacturers are as yet only tentative.

North American's decision to quit the Navion is not expected to affect prices in the lightplane market. The firm's distributors feel a market for the 185-hp., 4-place Navion, certificated by CAA in September, 1946, was just developing when the company decided to quit the personal plane field. Heavy military aircraft commitments at North American are believed by the distributors to have forced the decision, but the company denies that, insisting discontinuance was purely for financial reasons.

The Navion represents an investment of about $14,000,000 to NAA, in which the firm's loss at this stage is believed to be $5,000,000 to $7,000,000. That indicates the company lost at least $5,800 on every one of 850 Navions sold, or less if the entire lot of 1,110 Navions are sold. List price being $7,750, the airplane's cost to NAA has approximated $13,000 each. It had been estimated that sales of 4,000 Navions would place the company at a break-even point.

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Taylorcraft Back in Business Under C. G.

Simple ceremonies on May 23 christened the first 65-hp. Taylorcraft manufactured during 1947 when it was sold to L. W. Hubert, who bought the first T-craft made in 1937, at the factory in Alliance, Ohio. C. G. Taylor, who made Taylorcraft famous before late-arriving successors took over until bankruptcy closed down the enterprise recently, delivered the "Model 47" as president of newly-organized Taylorcraft, Inc. O. F. Nesmith, vice president, presided; B. L. Kapp, secretary-treasurer, assisted. B. J. Mauro of Pittsburgh, chairman of the new firm, was present.

Several Bids for Globe Properties

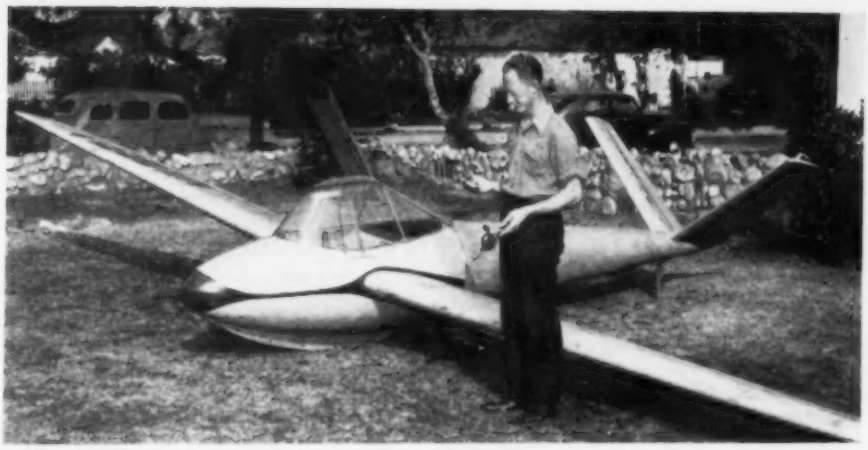
Several sealed bids had been received late in May for properties of Globe Aircraft Corp., at Fort Worth, ordered liquidated beginning June 5. However, Burton Paddock, trustee appointed by the Federal court for the sale, admitted 14 Swift 125's had been sold on a first-come-first-served individual basis as of May 26. He would not make public the amount individuals paid for the planes.

Fairchild Price Slashed

Price reductions amounting to a 20 per cent slash were effected last month on 4-place Fairchild F-24's, bringing the 165-hp. "modernized" Warner-powered model to $6,956, the 165-hp. new-engine Warner model to $7,236 and the 175-hp. Ranger model to $7,256, including radio.

NAA Convention

Over 200 delegates were expected at the National Aeronautic Association's Silver Jubilee convention in Fort Worth June 2-4, including many notables.



V-TAILED DROP TANK with 31-ft. sailplane wing makes this most unique entry in 14th annual National Soaring Meet in Wichita Falls, Texas, July 4-20. Irving Prue, Lockheed employe, designed and built it in Burbank, using droppable gas tank and magnesium sheet and ribs, holding empty weight down to only 185 lbs. Control is reportedly excellent. It stalls at 35 mph.

$10,000 Cash Awards To Pay Pilot Expenses In U. S. Soaring Meet

Award money exceeding $10,000, as against $4,000 at Elmira, N. Y., last year, has been practically assured for the Soaring Society of America's 14th annual National Soaring Meet in Wichita Falls, Texas, July 4-20, promising most if not all sailplane participants an opportunity to earn sufficient point money to pay their expenses. As a result, participation will be on a national scale, with many new designs competing from both coasts, the Midwest and the South. Traditionally anchored to Elmira, N. Y., former meets have never attracted nationwide participation on the scale expected at Wichita Falls.

In addition to cash distribution on a basis of points earned for all events (everybody wins something), there will be attractive goal prizes of cash jackpots offered by local donors in a number of cities to which distance fliers will be lured. Favorable winds will predominate in the direction of Louisiana, Arkansas, Mississippi, Tennessee, Oklahoma, Missouri, Illinois, Kansas and Nebraska. The world's distance record of 465.5 miles, held by Russia, is expected to be made by the contestant reaching St. Louis or its environs from Wichita Falls.

Bob Blaine, contest director, reports Don Mitchell and his original flying wing glider may journey from San Fernando, Calif., for the meet. British enthusiasts are bringing two new Olympia Eons. Over 75 craft and 125 pilots will take part. Five hundred beds and mattresses have been made available at the airport for crews.

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SKY'S THE LIMIT

(Continued from page 6)

after the airplane is ready to go. Passengers themselves are going to have to help out on this matter.

We have touched on airline handling of baggage before and have observed that in a few spots there appears to be some improvement. Nevertheless, it is still a paramount problem and we have been considering getting us a very light overnight bag and carrying one shirt, tooth brush, razor blades, etc., and sneaking this in under our arms in the disguise of a brief case. We know one or two people who have done this and although they never have enough clean clothes—at least they don't have to hang around airports waiting for their baggage.

We were talking to some airline employes the other day about the matter of airline tickets. Some of the airlines already have put out tickets one step better than the railroad companies. You simply tear off little stubs down to the station you want to go to. This makes it simple and easy. But some more of them operating out of the same terminal building evidently can't see over their own counters, so they are still laboriously writing out every station, trip number, etc., and that accounts for considerable delay on each operation.

The other morning we rode an airline ship to Tulsa and found there were two other passengers and ourselves. You can hardly afford to fly a DC-3 280 miles or so with only three passengers and a little mail. The stewardess said it was not normal, although she nearly always had from one to a number of vacant seats. Those vacant seats, as the airline people well know, are the difference between losing a little money and a whopping big profit. We suggested to this stewardess that she write the officials of the line and suggest that they start looking for some business in places that to our knowledge have not been previously worked.

We know some people in cities such as Okmulgee, Enid, Ada and Durant, Oklahoma, who are not situated on any commercial airline. These people are not even in the habit of using air mail to any considerable extent, except for transcontinental correspondence, for the reason that on short hauls the air mail is frequently no faster than regular mail. This condition probably will not be remedied until we have a lot of feeder airlines which, for some unaccountable reason, the airlines seem to oppose as vigorously as possible.

In many of these small towns we have been unable to determine from the hotel clerks what the airline schedules were at the nearest airline stops. Apparently no concerted effort has been made by the airlines to stimulate trade originating in these smaller places. Nevertheless, a good 75 per cent of all the people of the United States live in or near these smaller places and it may be possible to increase airline travel 100 per cent to 300 per cent by getting these people to fly. About as many people get on busses and trains in the small towns as ever get on airlines at some of the larger cities. Incidentally, it would be a good thing for the airlines to understand that they are safer with many customers who travel very seldom than they are with a few who travel almost constantly. We are sure that with directed effort on the part of airline people towards the postoffice and other transportation systems, proper schedules or arrangements might be set up which

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Timm Rudder (new); Culver Cadet Parts. 2 new Continental 220 hp engines. One 165 hp Warner engine. BL Taylorcraft parts. 12 Parts: Wings, ailerons, struts, etc. R-680 Lycoming Parts (new).
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27" NEW TIRES & LIFEGUARD TUBE: List price on tire and tube, $60.95; our price, $16. 27" AT-6, BT-13 tires, $15. New Lifeguard tubes, $3.50. 30" Norseman tires, $19. 45x20-10 tires, $55.
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would get air mail out of Okmulgee, Ada or Centreville or some other place and get it there the next morning the same as it could be gotten out of Tulsa, New York or Dallas.

We are saying all of these things because fast transportation means everything to this country and this age. We must patronize, criticize and support in every way possible this great transportation system which, to a considerable extent, led to war victories.

Here and There

THE other day we took our twin-engine Cessna out to give a man a demonstration on one engine. As a matter of fact, however, it steadfastly refused to fly on one engine and lost altitude at the rate of about 100 fpm. so long as we left the throttle and other controls at normal cruising. This puzzled us for a little while because we had flown this airplane on one engine many times for distances as far as 50 to 75 miles just to see if it would do it. What actually happened may have happened to many people and may be the clue to a number of accidents.

Our Cessna had not been used for about 45 days because of a combination of unfavorable weather, utilization of other transport and being away from home for a considerable part of the time. Although the tanks were nearly full, the gasoline had lost a good part of its higher, more volatile components and simply did not have normal fuel value. We think this might be a very serious hazard. Aged gas may actually reduce horsepower available for take-off by as much as 15 to 20 per cent. This brings the take-off and cruising speed too close together.

We have always been instructed to keep gasoline tanks filled at all times to avoid water from condensation in empty tanks. However, it seems that whatever you do is wrong and the best thing that one could do would be to let at least one tank go completely dry and not fill it until the next time you are ready to go. This would mean that drain plugs would have to be checked more often, but you would get better performance and more mileage out of the gasoline.

We rather feel like Mr. Luscombe and Mr. Cessna and a lot of other people who sell small airplanes may be back in business pretty soon, inasmuch as more and more students are being soloed and "privated."

One of our plants is near a small but thriving city which recently acquired a flying service that is teaching a number of its citizens to fly. The local paper comes out weekly with a report of the students who have soloed or have gotten their private licenses. This we have seen duplicated at any number of places over the country.

We see that the CAA has a new form for the sale and relicensing of aircraft. While everybody else was talking about the Russian situation, Mr. Wallace, and a lot of other well known problems, the old CAA has been busy revising its forms. This time they seem to have made a considerable improvement to avoid a lot of red-tape and waste of time and effort in transferring title to an airplane. We have always believed in the CAA and are glad to see this example that the old man with the long white whiskers has not put them out of business. ★ ★ ★

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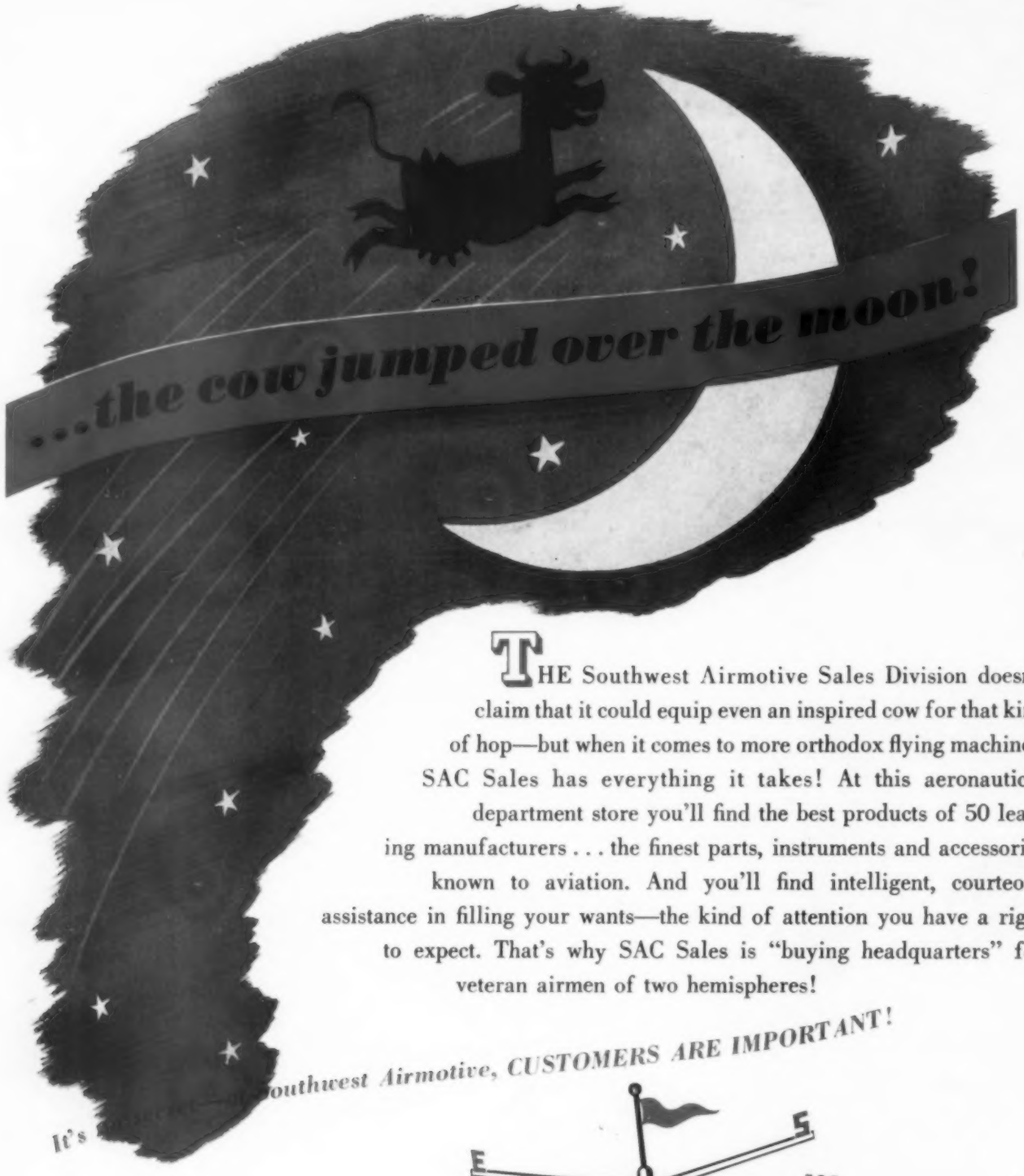

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